

A FULL LINEUP OF CONTROL RELAYS



Our general purpose industrial relays are a low-cost way of adding control and isolation relays to any application. Electromechanical relays are available in cube and card styles for a diverse range of installation requirements. Cube relays are available with standard linear or octal base connection patterns. Solid state relays available include DIN-rail mount and panel-mount styles.

All relays feature LED indicators for easy troubleshooting.

QL Series

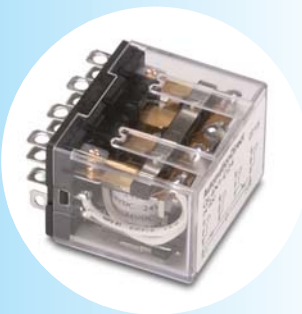
Electromechanical Cube Relay



QL series relays are general purpose relays designed for a wide range of applications. Units plug into DIN-rail mountable relay sockets, with a 5A contact rating. Ideal for electric control panels requiring stable and reliable relays.

QM Series

Electromechanical Cube Relay



The QM series relays are general purpose relays with a 10A contact rating, designed for use in applications from power to sequence controls in various factory machines and control panels.

78 Series

Electromechanical Cube Relay



78 series cube relays, with a 15A contact rating, are ideal for applications demanding high power control in various factory machines and control panels. Available in 24 VAC, 120VAC, 240 VAC and 24 VDC coil voltages

Electromechanical Relays

78 Series

Socket compatibility

Mechanical push to test

Lock-down door for circuit testing

Small size

Mechanical status flag for contact closure

LED for input coil

Check the technical specifications in the following pages to choose the right relay for your application.

Quality built into every relay at an affordable price.

Low price combined with industry-demanded quality make our relays one of the best values in automation.

Our manufacturers ensure that nothing is spared in the design and production of our products. By offering them direct to you, AUTOMATIONDIRECT makes certain that you get the same or better quality than other brands at a great price.

Solid State Relays

Red LED status lamp

Integral Heat sink

Finger Safe Cover

Two-year warranty

RELAYS / TIMERS

75 Series

Electromechanical Cube Relay



75 series cube relays with standard octal base design, offer high-current capability (12A) with compact design. Available in 24 VAC, 120 VAC, 240 VAC and 24 VDC coil voltages.

RS Card Series

Card Relay

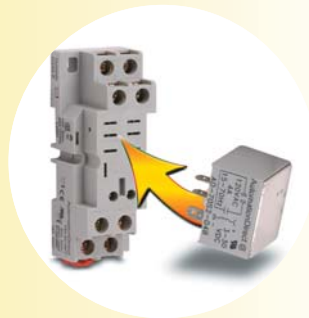


RS series relays are compact, space-saving, relay terminal modules containing four or six relays with one N.O. contact each.

These relay-and-terminal modules are ideal for interfacing electronic control devices with output devices.

AD-70S2 Series

Solid State Relays



These solid state relays, with 4 A contact ratings, plug into a DIN-rail mountable relay socket or can be wired with the quick-connect terminals.

AD-SSR Series

Solid State Relays



The SSR series are solid state, 10 A and 25 A, relays with no moving parts, featuring integral heat sink, finger safe cover, and red LED status lamp to show that voltage is being applied to the input. DIN-rail or panel mountable, these quality-built, rugged relays come with a two-year warranty.

ELECTROMECHANICAL RELAY SELECTION GUIDE



| Specification | QL Series | QM Series | RS Series Card Relays |
|-------------------------|---|---|---|
| Coil Voltages | 110/120VAC, 220VAC, 24VDC | 110/120VAC, 220VAC, 24VDC | 24VDC |
| Configuration | 2PDT, 4PDT | 2PDT, 4PDT | SPST (up to six relays) |
| Contact Rating | 10A | 5A DPDT ; 3A 4PDT | 5A |
| Base Socket | 8 or 14 pin spade terminal | 8 or 14 pin spade terminal | - |
| Agency Approvals | UL Recognized (#E222847), CE Certified (9667186-9811), CSA Approval pending | UL Recognized (#E222847), CE Certified (9667186-9811), CSA Approval pending | UL Recognized (E44592), CSA (LR20479) TUV (R95551729) |
| Pricing | check | check | check |

QL SERIES ELECTROMECHANICAL RELAY SELECTION GUIDE



QL series relays are general purpose relays designed for a wide range of applications, from power to sequence controls in various factory machines and control panels. They are ideal for electric control panels requiring stable and reliable relays.

Features

- Small package design
- ARC Barrier equipped
- Silver Cadmium Oxide contact
- High dielectric strength (1,800 VAC)
- High reliability and long life
- Ultra-high sensitivity with quick response time (25ms max.)
- High vibration and shock resistance
- LED indicator on all models, so you can easily see if relay is working properly without using a voltmeter
- Diode protection available on 24VDC models, which protects contacts and electronic components from back EMF
- UL recognized, CE certified, CSA approval pending
- DPDT and 4PDT models

• ORDER SOCKET SEPARATELY

| QL Series Selection Guide | | | | | | | | |
|---------------------------|-------|--------------|---------------|----------------|------------|--------------------------|-------|------------|
| Part Number | Price | Coil Voltage | Configuration | Contact Rating | Dimensions | Relay Socket Part Number | Price | Dimensions |
| QL2N1-A120 | check | 110/120VAC | 2PDT | 10A | Figure 1 | SQL08D | check | Figure 3 |
| QL4N1-A120 | check | | 4PDT | 10A | Figure 2 | SQL14D | check | Figure 4 |
| QL2N1-A220 | check | 220VAC | 2PDT | 10A | Figure 1 | SQL08D | check | Figure 3 |
| QL4N1-A220 | check | | 4PDT | 10A | Figure 2 | SQL14D | check | Figure 4 |
| QL2N1-D24 | check | 24VDC | 2PDT | 10A | Figure 1 | SQL08D | check | Figure 3 |
| QL2X1-D24 | check | | 2PDT | 10A | Figure 1 | SQL08D | check | Figure 3 |
| QL4N1-D24 | check | | 4PDT | 10A | Figure 2 | SQL14D | check | Figure 4 |
| QL4X1-D24 | check | | 4PDT | 10A | Figure 2 | SQL14D | check | Figure 4 |

QL SERIES ELECTROMECHANICAL RELAY SPECIFICATIONS

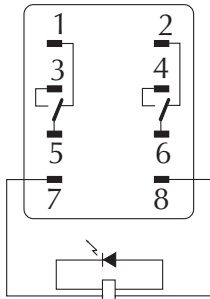
| QL Series Specification Table | | | | | | | | |
|---|--|-----------------|---------------|---------------|--------------------------------|---------------|--------------------------------|-----------|
| Part Numbers | QL2N1-A120 | QL2N1-A220 | QL4N1-A120 | QL4N1-A220 | QL2N1-D24 | QL2N1-D24 | QL4N1-D24 | QL4N1-D24 |
| Contact Specifications | | | | | | | | |
| Current Rating | 10A | | | | | | | |
| Contact Type | DPDT | | 4PDT | | DPDT | | 4PDT | |
| Terminal Type | Spade Plug-In Socket | | | | | | | |
| Rated Max. Resistive Load | 10A@110VAC/10A@24VDC | | | | | | | |
| Rated Max. Inductive Load | 7.5A@110VAC/ 5A@24VDC | | | | | | | |
| Max. Switching Cap. (Resistive Load) | 1,100VA; 240W | | | | | | | |
| Max. Switching Cap. (Inductive Load) | 825VA, 120W | | | | | | | |
| Max. Contact Rating | 250VAC/ 125VDC | | | | | | | |
| Coil Specifications | | | | | | | | |
| Options | LED Indicator | | | | LED Indicator/Diode Protection | LED Indicator | LED Indicator/Diode Protection | |
| Coil Input Voltage | 110/120VAC | 220/240VAC | 110/120VAC | 220/240VAC | 24VDC | | | |
| Rated Current at 50Hz | 9.9 /10.8mA | 6.2/6.8mA | 17/19mA | 11.5/13.1mA | 36.9mA | | 69mA | |
| Rated Current at 60Hz | 8.4/9.2mA | 5.3/5.8mA | 18/16.4mA | 9.8/11.2mA | 36.9mA | | 69mA | |
| Coil Resistance | 4.43k Ω | 12.95k Ω | 2.2k Ω | 6.7k Ω | 650 Ω | | 350 Ω | |
| Power Consumption | Approx. 0.9W to 1.1W (at 60Hz) | | | | Approx. 0.9W | | | |
| Dropout Voltage (% of rated voltage) | Min. 30% | | | | Min. 10% | | | |
| Pick-Up Voltage (Must operate voltage) | Max. 80% of the rated coil voltage | | | | | | | |
| Max. Voltage (Max. continuous voltage) | 110% of the rated coil voltage | | | | | | | |
| Min. Operating Voltage | 80% of the rated coil voltage | | | | | | | |
| General Specifications | | | | | | | | |
| Service Life | Mechanical: AC: Min. 50 million operations; DC: Min. 100 million operations (at operating frequency of 18,000 operations/hour) Electrical: DPDT: Min. 500k operations; 4PDT: Min. 200k operations (at operating frequency of 1,800 operations/hour) | | | | | | | |
| Operate Time | 25ms max | | | | | | | |
| Release Time | 25ms max | | | | | | | |
| Ambient Temperature | -25° C to 70° C (-13° F to 158° F) | | | | | | | |
| Ambient Humidity | 45% RH to 85% RH | | | | | | | |
| Contact Material | Silver Cadmium Oxide | | | | | | | |
| Contact Resistance | 50m Ω max. | | | | | | | |
| Operating Frequency | Mechanical 18,000 operations/hour; Electrical 1,800 operations/hour | | | | | | | |
| Vibration Resistance | 10Hz to 55Hz at double amplitude of 1.0mm | | | | | | | |
| Shock Resistance | 1,000m/s ² (approx. 100G) | | | | | | | |
| Weight | 35g (1.24oz.) | | | | | | | |
| Agency Approvals and Standards | UL Listed (#E150950), CE Certified (9667186-9811), CSA Certified | | | | | | | |

QL SERIES WIRING DIAGRAMS AND DERATING CURVES

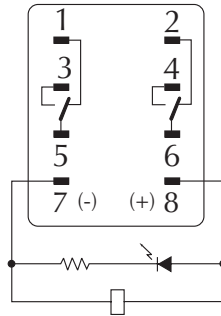
Wiring Diagrams

QL2N1-A120

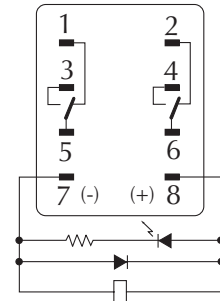
QL2N1-A220



QL2N1-D24

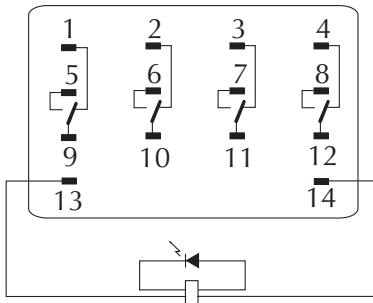


QL2X1-D24

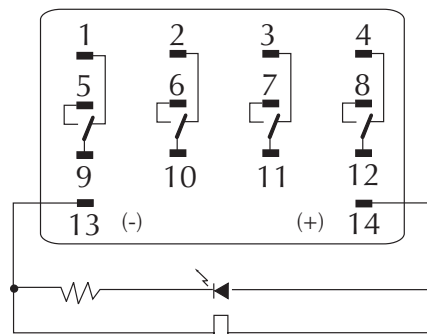


QL4N1-A120

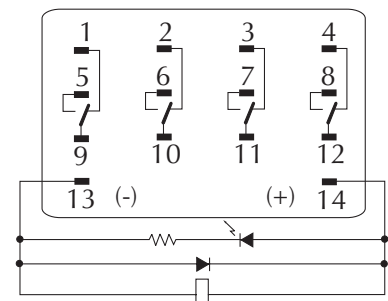
QL4N1-A220



QL4N1-D24



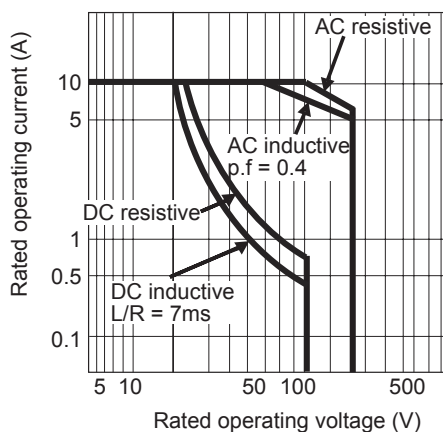
QL4X1-D24



Derating Curves

DPDT

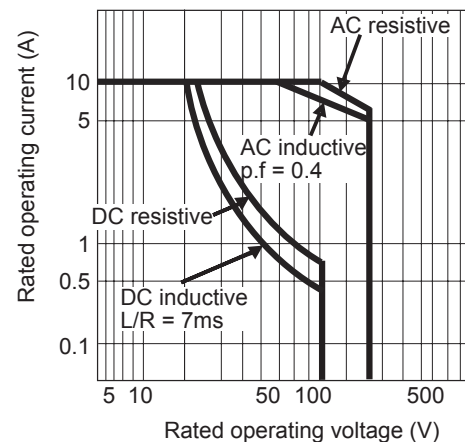
Max. Switching capacity



QL DPDT

4PDT

Max. Switching capacity



QL 4PDT

QL SERIES DIMENSIONAL DRAWINGS

Mounting dimensions (mm/in)

Figure 1
QL2 Dimensions

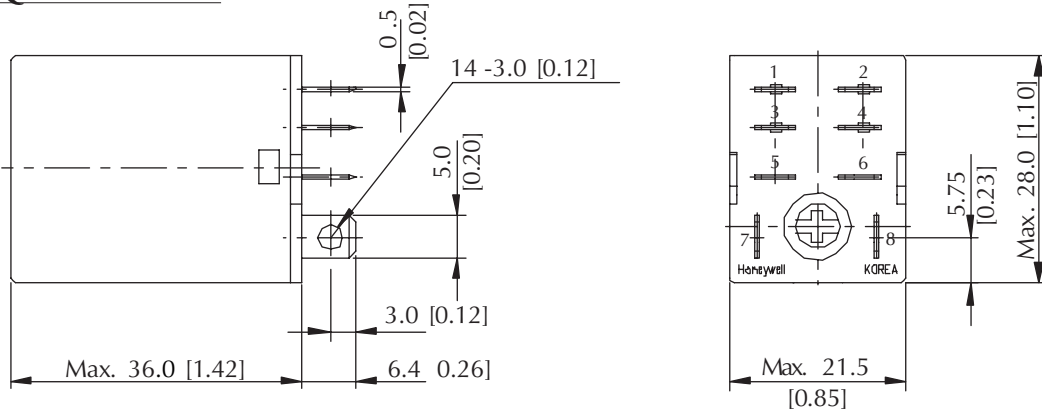
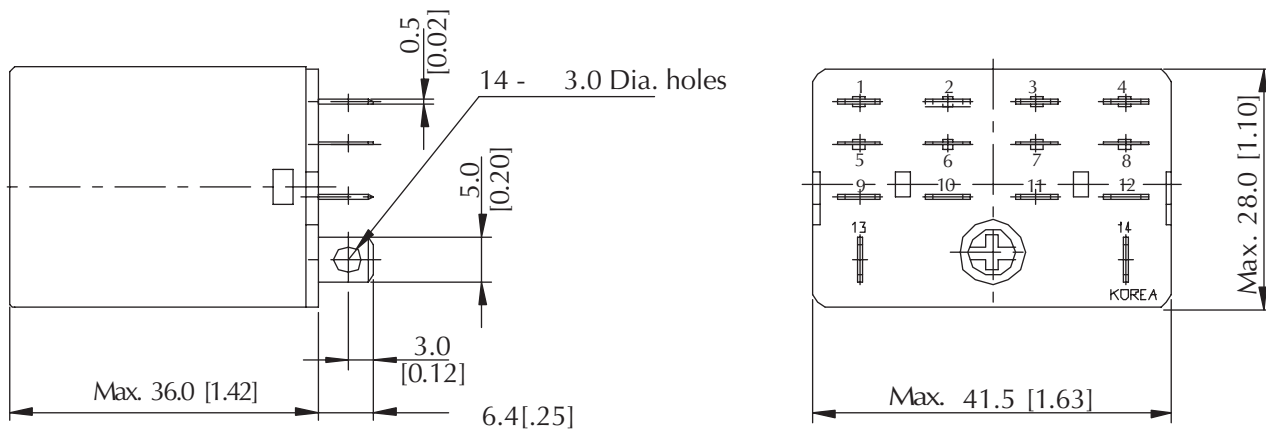
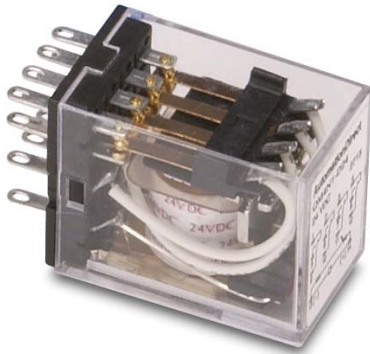


Figure 2
QL4 Dimensions



QM SERIES ELECTROMECHANICAL RELAY SELECTION GUIDE



QM series relays are general purpose relays designed for a wide range of applications, from power to sequence controls in various factory machines and control panels. They are ideal for electric control panels requiring stable and reliable relays.

Features

- Small package design
- DPDT has a fine silver contact with 5A capability
- 4PDT has a gold-plated silver contact with 3A capability
- High dielectric strength (1,800VAC)
- High reliability and long life
- Ultra-high sensitivity with quick response time (20ms max.)
- High vibration and shock resistance
- LED indicator on all models, so you can easily see if relay is working properly without using a voltmeter
- Diode protection on some 24VDC models protects contacts and electronic components from back EMF
- UL recognized, CE certified, CSA approval pending

• ORDER SOCKET SEPARATELY

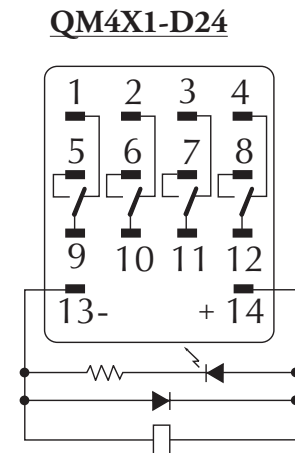
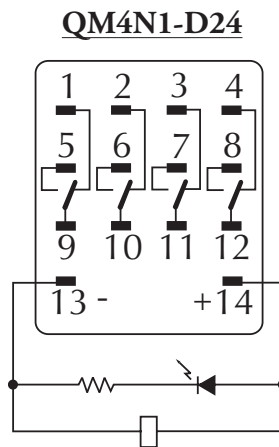
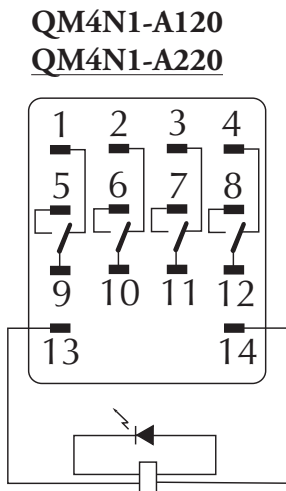
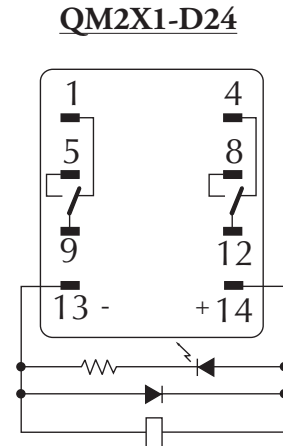
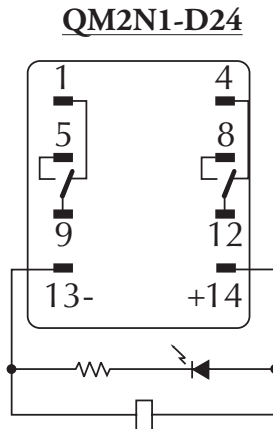
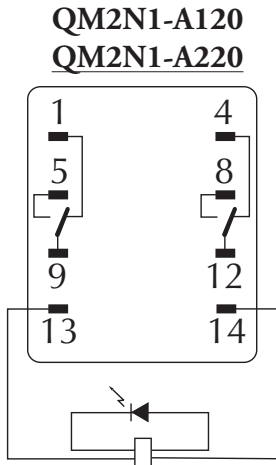
| QM Series Selection Guide | | | | | | | | |
|---------------------------|-------|--------------|---------------|----------------|------------|--------------------------|-------|------------|
| Part Number | Price | Coil Voltage | Configuration | Contact Rating | Dimensions | Relay Socket Part Number | Price | Dimensions |
| QM2N1-A120 | check | 110/120VAC | 2PDT | 5A | Figure 1 | SQM08D | check | Figure 5 |
| QM4N1-A120 | check | | 4PDT | 3A | Figure 2 | SQM14D | check | Figure 6 |
| QM2N1-A220 | check | 220VAC | 2PDT | 5A | Figure 1 | SQM08D | check | Figure 5 |
| QM4N1-A220 | check | | 4PDT | 3A | Figure 2 | SQM14D | check | Figure 6 |
| QM2N1-D24 | check | 24VDC | 2PDT | 5A | Figure 1 | SQM08D | check | Figure 5 |
| QM2X1-D24 | check | | 2PDT | 5A | Figure 1 | SQM08D | check | Figure 5 |
| QM4N1-D24 | check | | 4PDT | 3A | Figure 2 | SQM14D | check | Figure 6 |
| QM4X1-D24 | check | | 4PDT | 3A | Figure 2 | SQM14D | check | Figure 6 |

QM SERIES ELECTROMECHANICAL RELAY SPECIFICATIONS

| QM Series Specification Table | | | | | | | | |
|---|--|-----------------|----------------------------|-----------------|--------------------------------|---------------|--------------------------------|-----------|
| Part Numbers | QM2N1-A120 | QM2N1-A220 | QM4N1-A120 | QM4N1-A220 | QM2N1-D24 | QM2X1-D24 | QM4N1-D24 | QM4X1-D24 |
| Contact Specifications | | | | | | | | |
| Current Rating | 5A | | 3A | | 5A | | 3A | |
| Contact Type | DPDT | | 4PDT | | DPDT | | 4PDT | |
| Terminal Type | Spade plug-in socket | | | | | | | |
| Rated Max. Resistive Load | 5A @ 220VAC/5A @ 24VDC | | 3A @ 220VAC/3A @ 24VDC | | 5A @ 220VAC/5A @ 24VDC | | 3A @ 220VAC/3A @ 24VDC | |
| Rated Max. Inductive Load | 2A @ 220VAC/2A @ 24VDC | | 1.5A @ 220VAC/0.8A @ 24VDC | | 2A @ 220VAC/2A @ 24VDC | | 1.5A @ 220VAC/0.8A @ 24VDC | |
| Max. Switching Cap. (Resistive Load) | 1,100VA; 120W | | 660VA, 72W | | 1,100VA; 120W | | 660VA, 72W | |
| Max. Switching Cap. (Inductive Load) | 440VA, 48W | | 176VA, 36W | | 440VA, 48W | | 176VA, 36W | |
| Max. Contact Rating | 250VAC/125VDC | | | | 250VAC/125VDC | | | |
| Coil Specifications | | | | | | | | |
| Options | LED Indicator | | | | LED Indicator/Diode Protection | LED Indicator | LED Indicator/Diode Protection | |
| Coil Input Voltage | 110/120VAC | 220/240VAC | 110/120VAC | 220/240VAC | 24VDC | | | |
| Rated Current at 50Hz | 9.9/10.8mA | 6.2/6.8mA | 9.9/10.8mA | 6.2/6.8mA | 36.9mA | | | |
| Rated Current at 60Hz | 8.4/9.2mA | 5.3/5.8mA | 8.4/9.2mA | 5.3/5.8mA | | | | |
| Coil Resistance | 4.43k Ω | 12.95k Ω | 4.43k Ω | 12.95k Ω | 650 Ω | | | |
| Power Consumption | Approx. 0.9W to 1.1W (at 60Hz) | | | | Approx. 0.9W | | | |
| Dropout Voltage (% of rated voltage) | Min. 30% | | | | Min. 10% | | | |
| Pick-Up Voltage (Must operate voltage) | Max. 80% of the rated coil voltage | | | | | | | |
| Max. Voltage (Max. continuous voltage) | 110% of the rated coil voltage | | | | | | | |
| Min. Operating Voltage | 80% of the rated coil voltage | | | | | | | |
| General Specifications | | | | | | | | |
| Service Life | Mechanical: AC: Min. 50 million operations; DC: Min. 100 million operations (at operating frequency of 18,000 operations/hour) | | | | | | | |
| | Electrical: DPDT: Min. 500k operations; 4PDT: Min. 200k operations (at operating frequency of 1,800 operations/hour) | | | | | | | |
| Operate Time | 20ms max | | | | | | | |
| Release Time | 20ms max | | | | | | | |
| Ambient Temperature | -25° C to 75° C (-13° F to 167° F) | | | | | | | |
| Ambient Humidity | 45% RH to 85% RH | | | | | | | |
| Contact Material | Fine Silver | | Gold-plated Silver | | Fine Silver | | Gold-plated Silver | |
| Contact Resistance | 50m Ω max | | | | | | | |
| Operating Frequency | Mechanical: 18,000 operations/hour; Electrical: 1,800 operations/hour | | | | | | | |
| Vibration Resistance | 10Hz to 55Hz at double amplitude of 1.0mm | | | | | | | |
| Shock Resistance | 1,000m/s ² (approx. 100G) | | | | | | | |
| Weight | 35g (1.24oz.) | | | | | | | |
| Agency Approvals and Standards | UL Listed (#E150190), CE Certified (9667186-9811), CSA Certified | | | | | | | |

QM SERIES WIRING DIAGRAMS AND DERATING CURVES

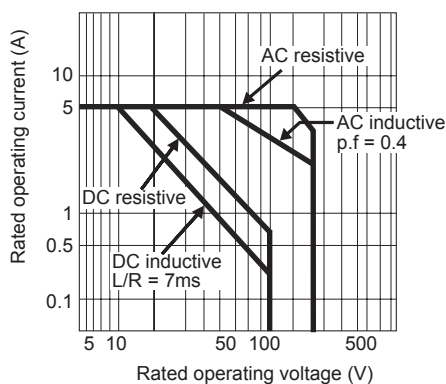
Wiring diagrams



Derating curves

DPDT

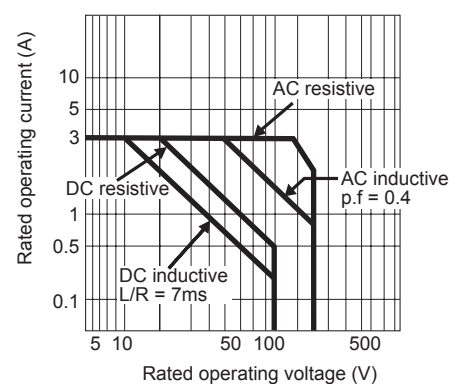
Max. Switching capacity



QM DPDT

4PDT

Max. Switching capacity



QM 4PDT

QM SERIES DIMENSIONAL DRAWINGS

Figure 1
QM2 Series Dimensions

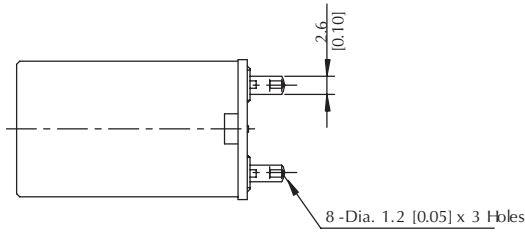
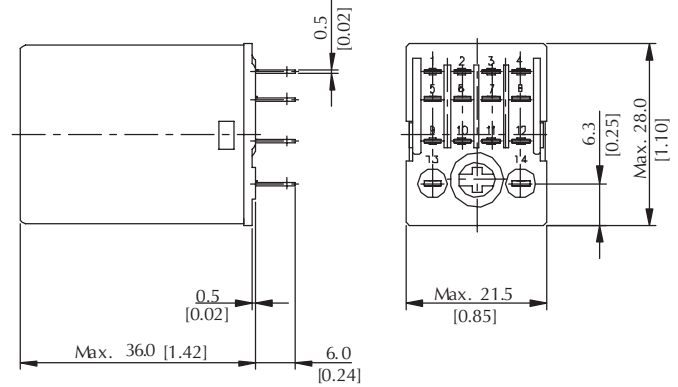
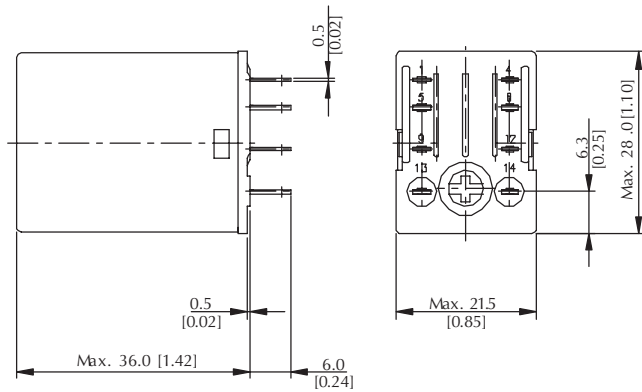
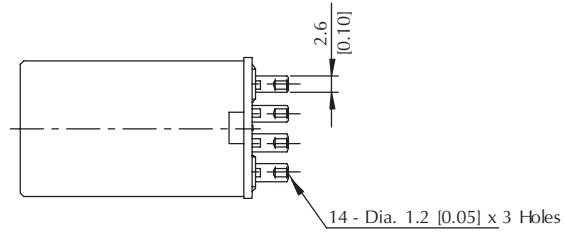


Figure 2
QM4 Series Dimensions



Mounting dimensions (mm/in)



SOCKETS FOR QL/QM SERIES RELAYS

SQL08D



Din-rail mounting, DPDT, for use with QL2 series relays

SQL14D



Din-rail mounting, 4PDT, for use with QL4 series relays

SQM08D



Din-rail mounting, DPDT, for use with QM2 series relays

SQM14D



Din-rail mounting, 4PDT, for use with QM4 series relays

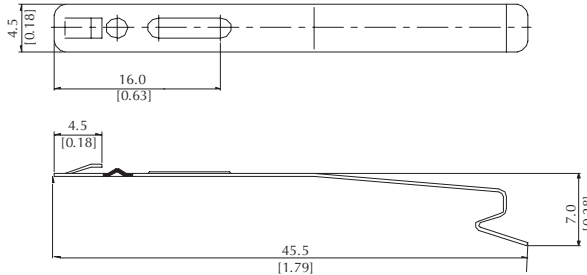
Holding Clips

- Holding clips for the QL2, QL4, QM2 and QM4 series relays can be removed by pushing the side of the inserting hole with a sharp object

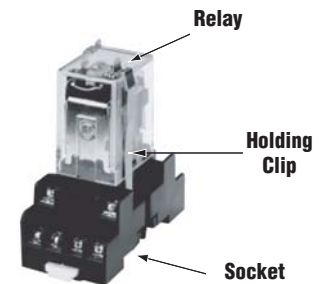
Note: Order sockets separately; holding clips are included with sockets.

Holding Clip Dimensions

Holding clip for QL4 series relays is included with SQL14D sockets.

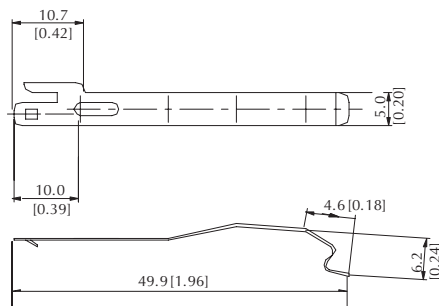


Insert holding clip into the slots provided on the socket.



Holding Clip Dimensions

Holding clip for QL2, QM2 and QM4 series relays is included with SQL08D, SQM08D and SQM14D sockets.



SOCKET DIMENSIONS FOR QL/QM SERIES RELAYS

Figure 3
SQL08D (for QL2 Series Relays)

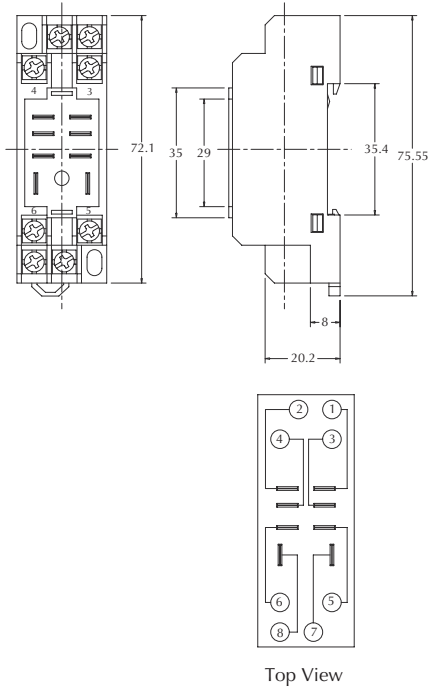


Figure 4
SQL14D (for QL4 Series Relays)

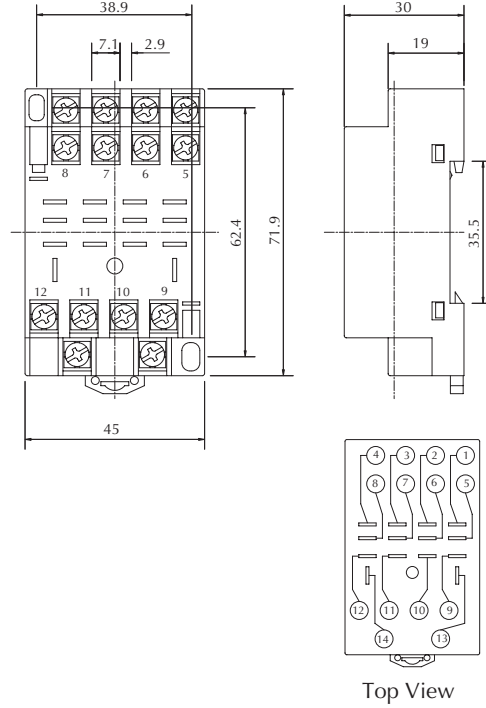


Figure 5
SQM08D (for QM2 Series Relays)

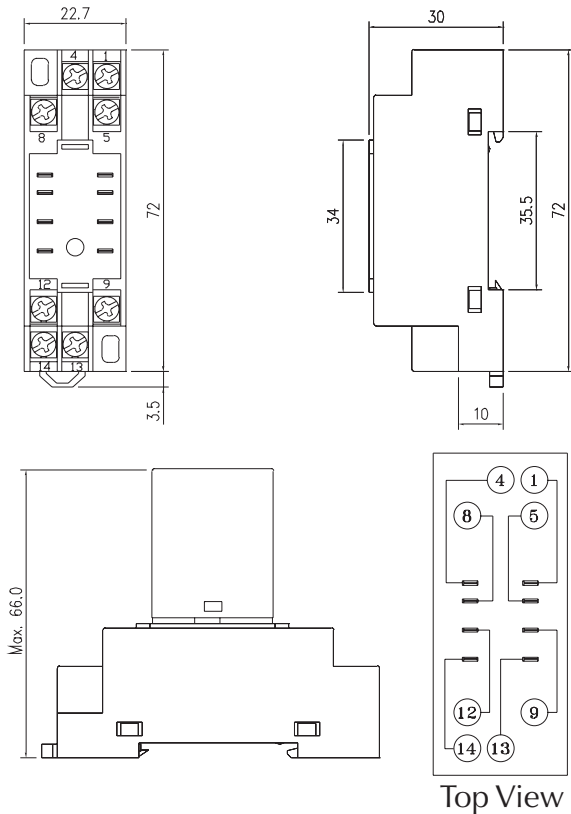
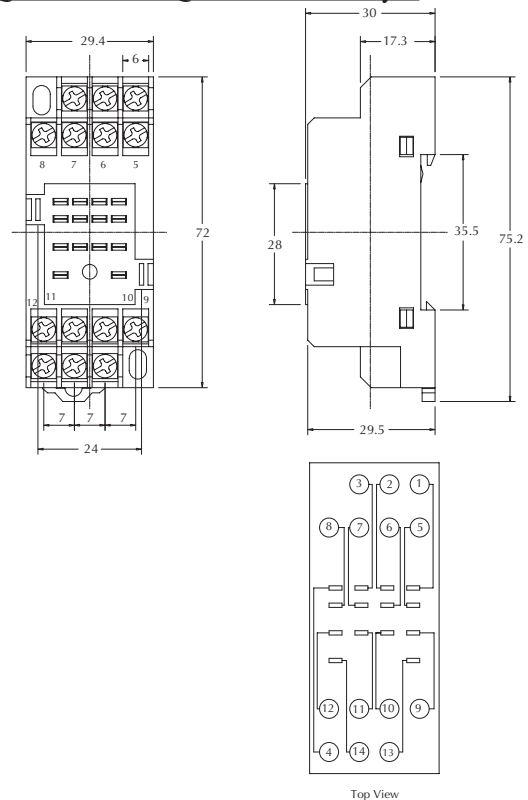
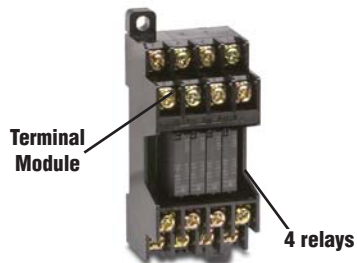


Figure 6
SQM14D (for QM4 Series Relays)



RS SERIES ELECTROMECHANICAL RELAY SELECTION GUIDE



RS4N-DE



RB105-DE



TY3



RZ4N

| RS Series Card Relay Selection Guide | | | |
|--------------------------------------|-------|---|--------------------------------|
| Part Number | Price | Description | Dimensions and Wiring Diagrams |
| RS4N-DE | check | Card relay (4 relays included; 4 commons), mounted in socket, 24VDC coil, SPST, 5A rating. TY3 included. | Figure 3 |
| RS6N-DE | check | Card relay (6 relays included; 2 commons; 3 relays per common), mounted in socket, 24VDC coil, SPST, 5A rating. TY3 included. | Figure 4 |
| RB105-DE | check | Spare relays (package of 10) for the RS series Relays. 24V DC coil, SPST, 5A rating. | Figure 1 |
| TY3 | check | Relay remover for RS series relays. Package of 10. | - |
| RZ4N | check | Terminal guard for RS series relays. Package of 10. | Figure 2 |

RS SERIES RELAY SPECIFICATIONS



RS6N-DE

RS series relays are compact, space-saving relay terminal modules containing four or six card relays with one normally open contact each. These relays-and-terminal modules are ideal for interfacing electronic control devices (such as PLCs or photoelectric sensors) with output devices.

Features:

- Compact size of 34mm wide by 69mm long, including screw terminals
- Input terminals are located in the upper part and output terminals in the lower part of the module to separate them from each other, making wiring easy
- RB105 plug-in relays and TP04 sockets make maintenance easy
- Built-in coil surge-suppression diodes and operation indicator LEDs simplify circuit design and maintenance
- The module is easily-mounted on a 35mm DIN rail
- The RS4N module includes two standard accessory jumper plates, which are convenient for common wiring of terminals

RS4N-DE and RS6N-DE Series Card Relay Specifications Table

| RS4N-DE and RS6N-DE Series Card Relay Specifications Table | | | | | |
|--|---|------------------------------------|-------------------------|--------------------------|-------------------|
| Contact | | 1 NO / SPST | | | |
| Contact Resistance | | 30mΩ or less (before use) | | | |
| Contact Material | | Silver alloy (Au-plated) | | | |
| Min. Operating Voltage and Current | | 0.1VDC, 1mA | | | |
| Rated Thermal Current | | 5A | | | |
| Max. Make/Break Current | | 250VAC, 5A 30VDC, 5A | | | |
| Operating Time | | 10ms or less at rated voltage | | | |
| Release Time | | 10ms or less at rated voltage | | | |
| Insulation Resistance | | 100MΩ (at 500VDC megger) | | | |
| Dielectric Strength | Between contact and coil | 2000VAC 1 minute | | | |
| | Between contacts of same pole | 750VAC 1 minute | | | |
| | Between contacts of different pole | 2000VAC 1 minute | | | |
| | Between coils of different pole | 500VAC 1 minute | | | |
| Vibration | Malfunction durability | 10 to 55Hz, 1mm double amplitude | | | |
| | Mechanical durability | 10 to 55Hz, 1.5mm double amplitude | | | |
| Shock | Malfunction durability | 100m/s ² | | | |
| | Mechanical durability | 1000m/s ² | | | |
| Life Expectancy | Mechanical | 20 million operations | | | |
| | Electrical | Voltage | Make current (A) | Break current (A) | Operations |
| | | 220VAC (inductive load) | 2 (cos φ = 0.7) | 2 (cos φ = 0.3 - 0.4) | 100,000 |
| | | 220VAC (resistive load) | 3 (cos φ = 1.0) | 3 (cos φ = 1.0) | 130,000 |
| | | 24VDC (inductive load) | 1 (T = 15ms) | 1 (T = 15ms) | 150,000 |
| 24VDC (resistive load) | 5 (T = 1ms or less) | 5 (T = 1ms or less) | 100,000 | | |
| Ambient Temperature | | -25 to + 55° C (no icing) | | | |

ELECTROMECHANICAL RELAY RB105-DE SPECIFICATIONS



RB105-DE

These spare relays are for replacement in RS4N-DE and RS6N-DE relay modules (5mm). Bifurcated contacts ensure high contact reliability, allowing use in low-level circuits.

Features

- Narrow, miniature size and light weight reduces space on the DIN rail
- UL, CSA, CE, and TUV approved
- Low power consumption
- Can be operated with a non-polarity magnet
- Fluxtight construction

RB105-DE Card Relay Specification Table

| | | | |
|--|--|-----------------------------------|-----------------------|
| Operating Time | 10ms or less at rated voltage | | |
| Release Time | 5ms or less at rated voltage | | |
| Insulation Resistance | 100MΩ (at 500VDC megger) | | |
| Dielectric Strength | 750VAC 1 minute between open contacts 2000VAC 1 minute between contact and coil | | |
| Impulse | 4,500V or more 1.2 x 50µs between contact and coil | | |
| Electrical Life Expectancy | AC: 100,000 operations at 220VAC 2A, inductive load 130,000 operations at 220VAC 3A, resistive load DC: 150,000 operations at 24VDC 1A, inductive load 100,000 operations at 24VDC 5A, resistive load | | |
| Mechanical Life Expectancy | 20 million operations | | |
| Ambient Temperature | -40° C to +70° C (no icing) | | |
| Contact Ratings | Voltage | Resistive load | Inductive load |
| | 120VAC | - | 1A |
| | 240VAC | 5A | - |
| | 30VDC | 5A | 2A (15ms) |
| | 120VDC | 0.5A | 0.2A (15ms) |
| Thermal Current | 5A | | |
| Make and Break Current (Resistive Load) | 5A at 250VAC 5A at 30VDC | | |
| Operating Coil | Rated voltage | 24VDC | |
| | Pick-up voltage | 70% or less of rated coil voltage | |
| | Drop-out voltage | 5% or more of rated coil voltage | |
| | Power consumption | 200mW | |
| | Coil resistance | 2880Ω | |

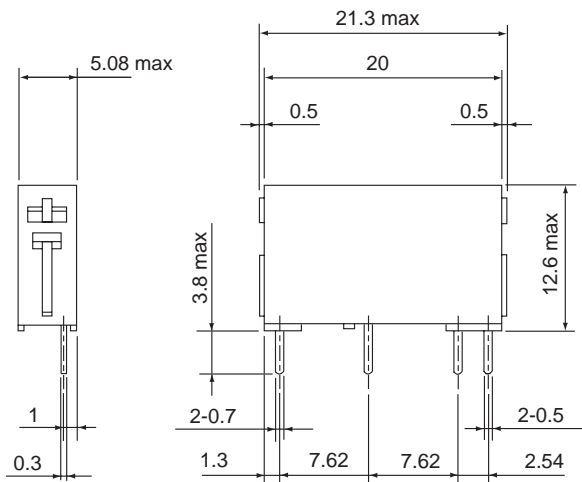
RS SERIES RELAY REMOVER AND PROTECTIVE COVER

Relay remover, TY3

To remove a relay from the terminal module, use the TY3 relay remover. RS4N-DE and RS6N-DE modules include a TY3 relay remover. Pull the relay in a direction perpendicular to the terminal module surface. Incorrectly removing or mounting a relay may damage the relay pins and pin jacks of the module.



Figure 1 (Dimensions, mm)
RB105-DE

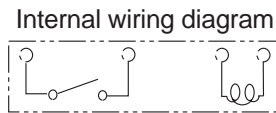
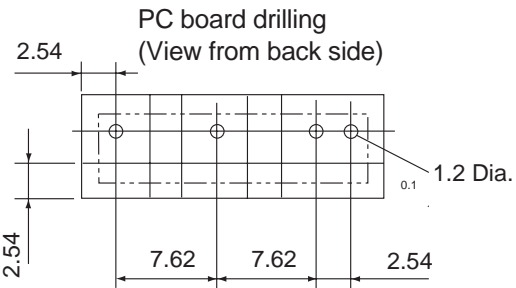
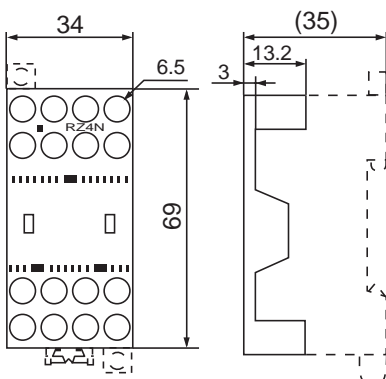


Optional protective cover, RZ4N

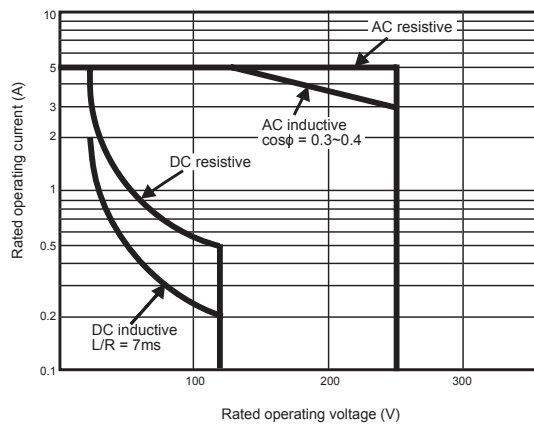
A protective cover fits over the RS4N-DE or RS6N-DE module and protects the terminals.



Figure 2 (Dimensions, mm)
RZ4N (Terminal guard for RS Series)

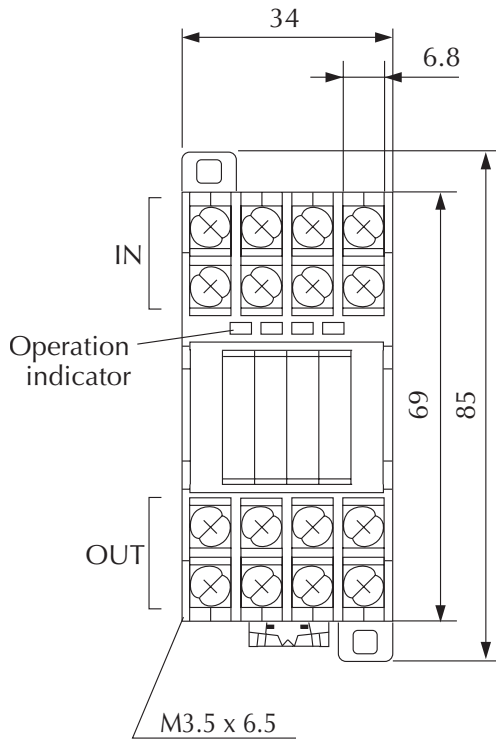


RS and RB105 derating curve

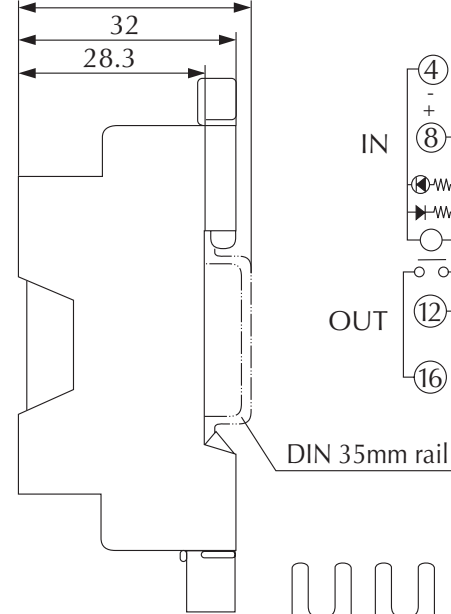


RS SERIES RELAY DIMENSIONS AND WIRING DIAGRAMS

Figure 3 Dimensions (mm)
RS4N-DE



43.5 (Rail height 15)
36 (Rail height 7.5)



Wiring diagram
RS4N

Internal wiring

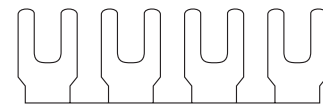
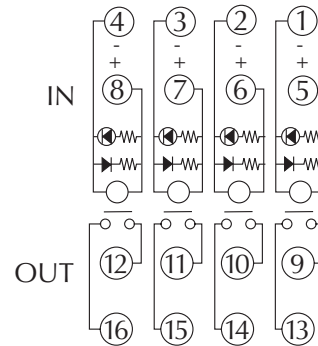
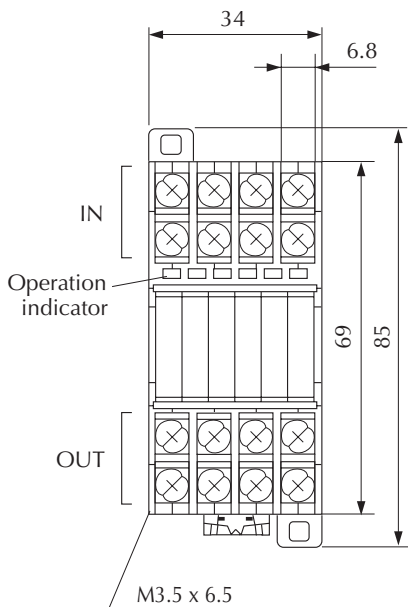
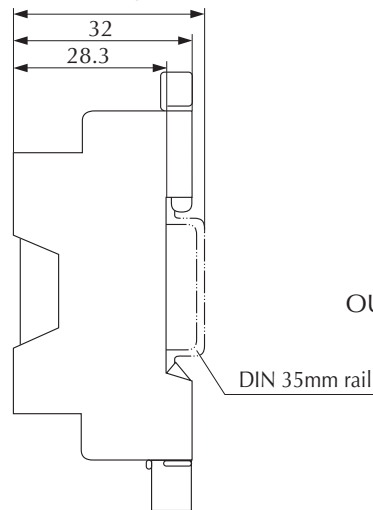


Figure 4 Dimensions (mm)
RS6N-DE

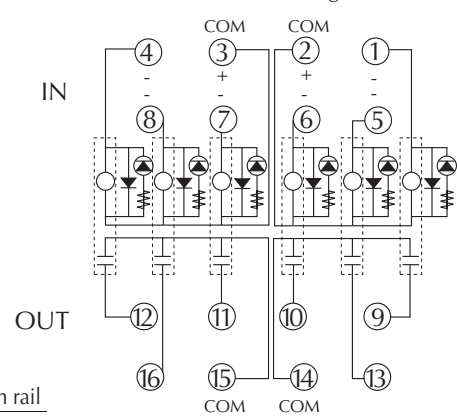


43.5 (Rail height 15)
36 (Rail height 15)



Wiring diagram
RS6N-DE

Internal wiring



78 SERIES ELECTROMECHANICAL RELAY SELECTION GUIDE



| Specification | 781 Series | 782 Series | 784 Series |
|-------------------------|--|---|---|
| Coil Voltages | 110/120VAC, 220VAC, 24VAC, 24VDC | 110/120VAC, 220VAC, 24VAC, 24VDC | 110/120VAC, 220VAC, 24VAC, 24VDC |
| Configuration | 1PDT | 2PDT | 4PDT |
| Contact Rating | 15A | 15A | 15A |
| Base Socket | 5 pin spade terminal | 8 pin spade terminal | 14 pin spade terminal |
| Agency Approvals | UL Recognized (E43641), CE Approval pending, CSA 97899 | UL Recognized (E43641), CE Approval pending, CSA Approval pending | UL Recognized (E43641), CE Approval pending, CSA Approval pending |
| Pricing | check | check | check |

The ice cube style relays are power relays designed for applications demanding high power control in various factory machines and control panels. They are ideal for electric control panels requiring stable and reliable relays.



Features

- Small package design
- Silver Cadmium Oxide gold flashed contact
- High dielectric strength (1,500 VAC)
- High reliability and long life
- High vibration and shock resistance
- LED indicator on all models, so you can easily see if the relay is working properly without using a voltmeter
- Flag indicator shows relay status in manual or powered condition
- A push button allows manual operation of the relay without the need for power to the coil
- Lock-Down door, when activated, holds push button and contacts in the operate position allowing circuits to be analyzed
- SPDT, 2PDT and 4PDT models
- Finger grip cover allows easier removal of relays from sockets than conventional relays
- I.D. tag/write labels for identifying relays in multi-relay circuits

• ORDER SOCKET SEPARATELY

| 78 Series Relays Selection Guide | | | | | | | | |
|----------------------------------|-------|--------------|---------------|----------------|------------|--------------------------|-------|------------|
| Part Number | Price | Coil Voltage | Configuration | Contact Rating | Dimensions | Relay Socket Part Number | Price | Dimensions |
| 781-1C-24D | check | 24VDC | SPDT | 15A | Figure 1 | 781-1C-SKT | check | Figure 4 |
| 781-1C-24A | | 24VAC | | | | | | |
| 781-1C-120A | | 120VAC | | | | | | |
| 781-1C-240A | check | 240VAC | | 12A | | | | |
| 782-2C-24D | check | 24VDC | DPDT | 15A | Figure 2 | 782-2C-SKT | check | Figure 5 |
| 782-2C-24A | | 24VAC | | | | | | |
| 782-2C-120A | | 120VAC | | | | | | |
| 782-2C-240A | check | 240VAC | | 12A | | | | |
| 784-4C-24D | check | 24VDC | 4PDT | 15A | Figure 3 | 784-4C-SKT | check | Figure 6 |
| 784-4C-24A | | 24VAC | | | | | | |
| 784-4C-120A | | 120VAC | | | | | | |
| 784-4C-240A | | 240VAC | | | | | | |

78 SERIES ELECTROMECHANICAL RELAY SPECIFICATIONS

| 78 Series Relay Specification Table | | | | | | | | | | | | |
|---|--|------------|-------------|-------------|---------------------------------|------------|-------------|-------------|---------------------------------|------------|-------------|-------------|
| Part Numbers | 781-1C-24D | 781-1C-24A | 781-1C-120A | 781-1C-240A | 782-2C-24D | 782-2C-24A | 782-2C-120A | 782-2C-240A | 784-4C-24D | 784-4C-24A | 784-4C-120A | 784-4C-240A |
| General Specifications | | | | | | | | | | | | |
| Service Life | Mechanical: 10,000,000 operations @ rated resistive load | | | | | | | | | | | |
| | Electrical: 150,000 operations @ rated resistive load | | | | | | | | | | | |
| Operating Temperature | -30°C to 70°C (-22°F to 158°F) | | | | | | | | | | | |
| Ambient Humidity | 45% RH to 85% RH | | | | | | | | | | | |
| Vibration Resistance | 6 g's, 10 to 55Hz (0.6mm double amplitude) | | | | | | | | | | | |
| Shock Resistance | 10 g's | | | | | | | | | | | |
| Weight | 80g (2.82oz.) | | | | | | | | | | | |
| Agency Approvals and Standards | UL Listed Pending, CE Certified Pending, CSA Pending | | | | | | | | | | | |
| NEMA B300 Pilot Duty Rated | No | Yes | | No | Yes | | No | Yes | | No | Yes | |
| Coil Specifications | | | | | | | | | | | | |
| Standard | LED Indicator | | | | | | | | | | | |
| Coil Input Voltage | 24VDC | 24VAC | 120VAC | 240VAC | 24VDC | 24VAC | 120VAC | 240VAC | 24VDC | 24VAC | 120VAC | 240VAC |
| Coil Resistance | 120Ω | 180Ω | 4.3kΩ | 9.1kΩ | 470Ω | 72Ω | 1.7kΩ | 9.1kΩ | 380Ω | 84.5Ω | 2.22kΩ | 9.12kΩ |
| Power Consumption | 0.7W DC, 0.9VA @ 60Hz AC @ 25°C | | | | 0.9W DC, 1.2VA @ 60Hz AC @ 25°C | | | | 1.5W DC, 2.0VA @ 60Hz AC @ 25°C | | | |
| Dropout Voltage (% of nominal voltage or more) | Min. 10% | Min. 30% | | Min. 10% | Min. 30% | | Min. 10% | Min. 30% | | Min. 10% | Min. 30% | |
| Pull-in Voltage (% of nominal voltage or less) | 75% | 80% | | 75% | 80% | | 75% | 80% | | 75% | 80% | |
| Max. Voltage (Max. continuous voltage) | 110% of the rated coil voltage | | | | | | | | | | | |
| Contact Specifications | | | | | | | | | | | | |
| Contact Type | SPDT | | | | DPDT | | | | 4PDT | | | |
| Contact Material | Silver cadmium oxide, gold flashed | | | | | | | | | | | |
| Contact Resistance | N/A | | | | | | | | 0.050Ω max. initial resistance | | | |
| Max. Contact Rating | 20A @ 220/277VAC | | | | | | | | | | | |

78 SERIES ELECTROMECHANICAL RELAY SPECIFICATIONS

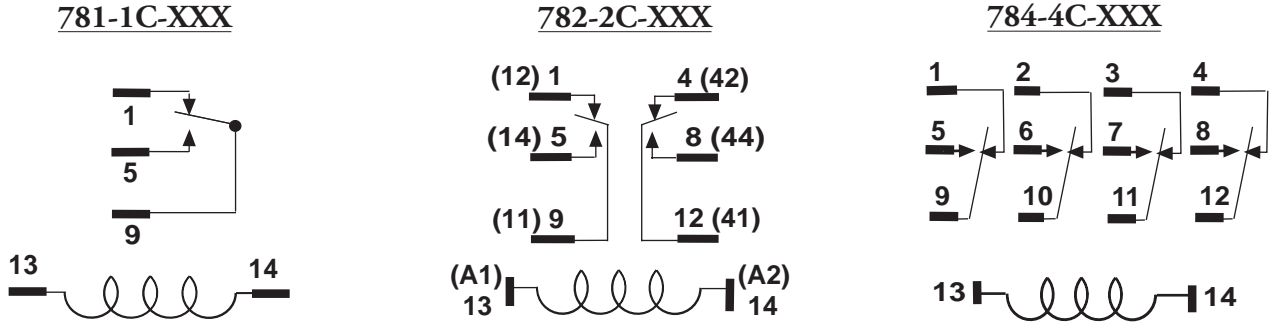
| 781 Series Contact Ratings (current) | | | | |
|--------------------------------------|----------------|-----------|------------|-------------------|
| <i>Resistive</i> | | | | <i>Motor Load</i> |
| <i>Voltage</i> | <i>Nominal</i> | <i>UL</i> | <i>CSA</i> | <i>UL</i> |
| 28VDC | 15A | 15A | 15A | --- |
| 110VAC | 15A | 15A | 15A | 1/2Hp |
| 120VAC | 15A | 15A | 15A | 1/2Hp |
| 220VAC | 12A | 12A | 10A | 1/2Hp |
| 250VAC | 12A | 12A | 10A | 1Hp |

| 782 Series Contact Ratings (current) | | | | |
|--------------------------------------|----------------|-----------|------------|-------------------|
| <i>Resistive</i> | | | | <i>Motor Load</i> |
| <i>Voltage</i> | <i>Nominal</i> | <i>UL</i> | <i>CSA</i> | <i>UL</i> |
| 28VDC | 12A | 12A | 12A | --- |
| 110VAC | 15A | 15A | 15A | 1/2Hp |
| 120VAC | 15A | 15A | 15A | 1/2Hp |
| 220VAC | 12A | 12A | 10A | 1Hp |
| 250VAC | 12A | 12A | 10A | 1Hp |

| 784 Series Contact Ratings (current) | | | | |
|--------------------------------------|----------------|-----------|------------|-------------------|
| <i>Resistive</i> | | | | <i>Motor Load</i> |
| <i>Voltage</i> | <i>Nominal</i> | <i>UL</i> | <i>CSA</i> | <i>UL</i> |
| 28VDC | 12A | 12A | 12A | --- |
| 110VAC | 15A | 15A | 15A | 1/2Hp |
| 120VAC | 15A | 15A | 15A | 1/2Hp |
| 220VAC | 12A | 12A | 12A | 1/2Hp |
| 250VAC | 12A | 12A | 12A | 3/4Hp |

78 SERIES WIRING DIAGRAMS AND DIMENSIONS

Wiring Diagrams (viewed from pin end)



ALTERNATE NEMA OR IEC () NUMBERS, VIEWED FROM PIN SIDE

Dimension Drawings

Figure 1: 781-1C Dimensions

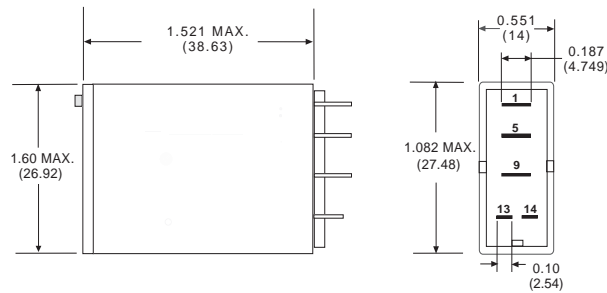


Figure 2: 782-2C Dimensions

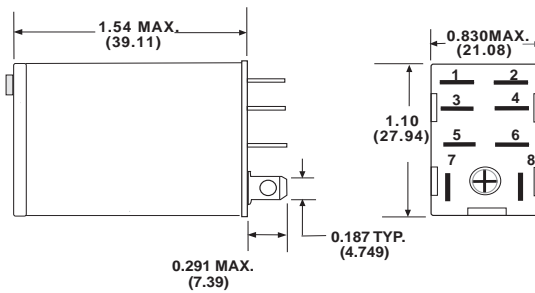
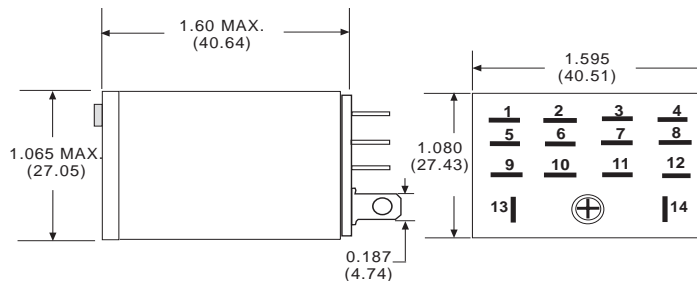


Figure 3: 784-4C Dimensions



78 SERIES RELAY SOCKET DIMENSIONS

Figure 4: 781-1C-SKT Dimensions

(in./mm)



Din-rail mounting, SPDT, for use with 781 series relays

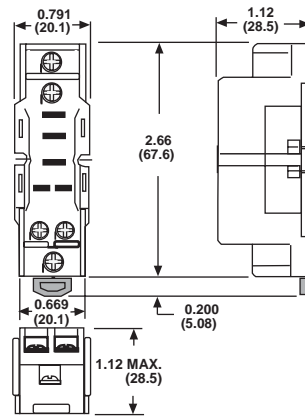


Figure 5: 782-2C-SKT Dimensions

(in./mm)



Din-rail mounting, DPDT, for use with 782 series relays

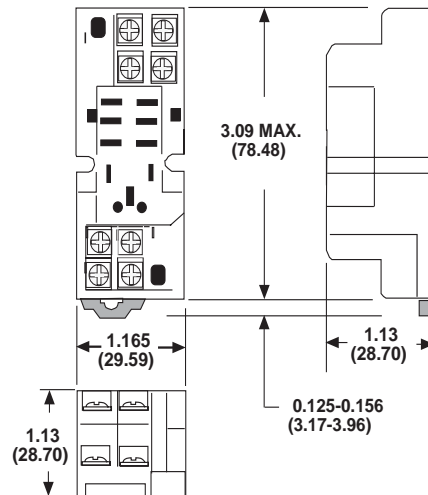
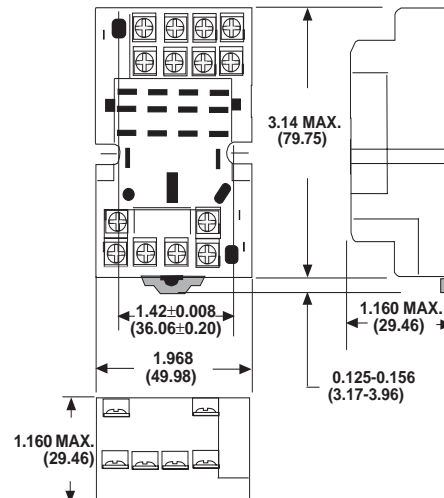


Figure 6: 784-4C-SKT Dimensions

(in./mm)



Din-rail mounting, 4PDT, for use with 784 series relays



NOTE: ORDER SOCKETS SEPARATELY; HOLDING CLIPS ARE INCLUDED WITH SOCKETS.



75 SERIES ELECTROMECHANICAL RELAY SELECTION GUIDE



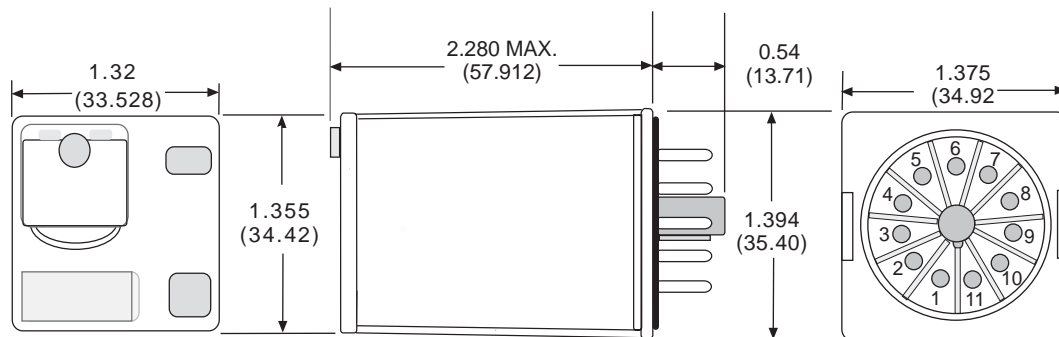
75 series relays are general purpose relays designed for a wide range of applications, from power to sequence controls in various factory machines and control panels. They are ideal for electric control panels requiring stable and reliable relays.

Features

- Octal base design
- Silver Cadmium Oxide, gold flashed contacts
- High dielectric strength (2,500VAC)
- High reliability and long life
- High vibration and shock resistance
- Flag indicator shows relay status in manual or powered condition
- LED indicator on all models, so you can easily see if relay is working properly without using a voltmeter
- A push button allows manual operation of the relay without the need for power to the coil
- I.D. tag/write label for identifying relays in multi-relay circuits

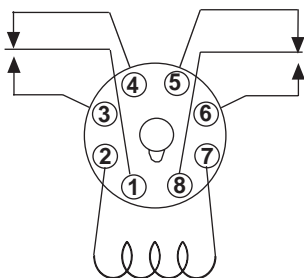
| 75 Series Relay Selection Guide | | | | | | |
|---------------------------------|-------|--------------|---------------|----------------|--------------------------|-------|
| Part Number | Price | Coil Voltage | Configuration | Contact Rating | Relay Socket Part Number | Price |
| 750-2C-24D | check | 24VDC | DPDT | 12A | 750-2C-SKT | check |
| 750-2C-24A | | 24VAC | | | | |
| 750-2C-120A | | 120VAC | | | | |
| 750-2C-240A | check | 220VAC | 3PDT | | 750-3C-SKT | check |
| 750-3C-24D | check | 24VDC | | | | |
| 750-3C-24A | | 24VAC | | | | |
| 750-3C-120A | check | 120VAC | | | | |
| 750-3C-240A | check | 240VAC | | | | |

75 Series Relay Dimensions

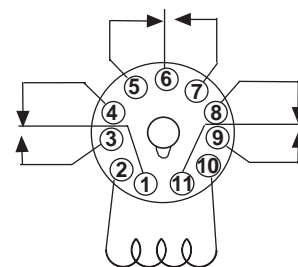


Note: Dimensions for the 750-2C-xxx are the same as shown above.

750-2C-xxx wiring diagram



750-3C-xxx wiring diagram



ORDER SOCKET SEPARATELY

75 SERIES ELECTROMECHANICAL RELAY SPECIFICATIONS

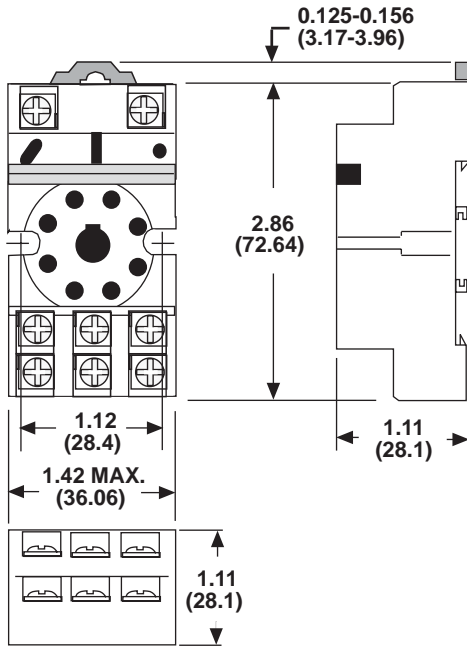
| 75 Series Specification Table | | | | | | | | |
|---|---|-------------|-------------|------------|-------------|--------------|-------------------------------------|------------|
| Part Numbers | 750-2C-24A | 750-2C-120A | 750-2C-240A | 750-3C-24A | 750-3C-120A | 750-3C-240A | 750-2C-24D | 750-3C-24D |
| Contact Specifications | | | | | | | | |
| Contact Type | DPDT | | | 3PDT | | | DPDT | 3PDT |
| Contact Material | Silver cadmium oxide, gold flashed | | | | | | | |
| Contact Rating | 12A @ 120/240VAC 50/60Hz, 12A @ 28VDC 1/3Hp 120VAC, 1/2Hp 240VAC | | | | | | | |
| Contact Resistance | 0.050Ω max. @ 10A, 120VAC or 24VDC Contacts conditioned for 50 make and break operations @ 1 sec. ON and 1 sec. OFF. | | | | | | | |
| Coil Specifications | | | | | | | | |
| Standard | LED Indicator | | | | | | | |
| Coil Input Voltage | 24VAC | 120VAC | 240VAC | 24VAC | 120VAC | 240VAC | 24VDC | 24VDC |
| Coil Resistance | 72Ω | 1.7kΩ | 9.1kΩ | 72Ω | 1.7kΩ | 9.1kΩ | 72Ω | |
| Power Consumption | 2VA to 3.55VA (60Hz) AC | | | | | 3.0 watts DC | | |
| Dropout Voltage (% of rated voltage) | Min. 30% | | | | | | Min. 10% | |
| Pull-in Voltage | Max. 85% of nominal voltage or less | | | | | | Max. 80% of nominal voltage or less | |
| Max. Voltage (Max. continuous voltage) | 110% of the rated coil voltage | | | | | | | |
| General Specifications | | | | | | | | |
| Service Life | Mechanical: 5 million operations Electrical: 200,000 operations @ rated resistive load | | | | | | | |
| Operating Temperature | -40°C to 50°C (-40°F to 122°F) | | | | | | -40°C to 65°C (-40°F to 149°F) | |
| Weight | 88g (3.1oz.) | | | | | | | |
| Agency Approvals and Standards | UL Listed (#E150190), CE Certified (9667186-9811), CSA Certified | | | | | | | |

| 75 Series Contact Ratings (current) | | | | |
|-------------------------------------|-----------|-----|-----|------------|
| Voltage | Resistive | | | Motor Load |
| | Nominal | UL | CSA | UL |
| 28VDC | 12A | 12A | 12A | --- |
| 120VAC | 12A | 12A | 12A | 1/3Hp |
| 240VAC | 12A | 12A | 12A | 1/2Hp |

75 SERIES SOCKET DIMENSIONS

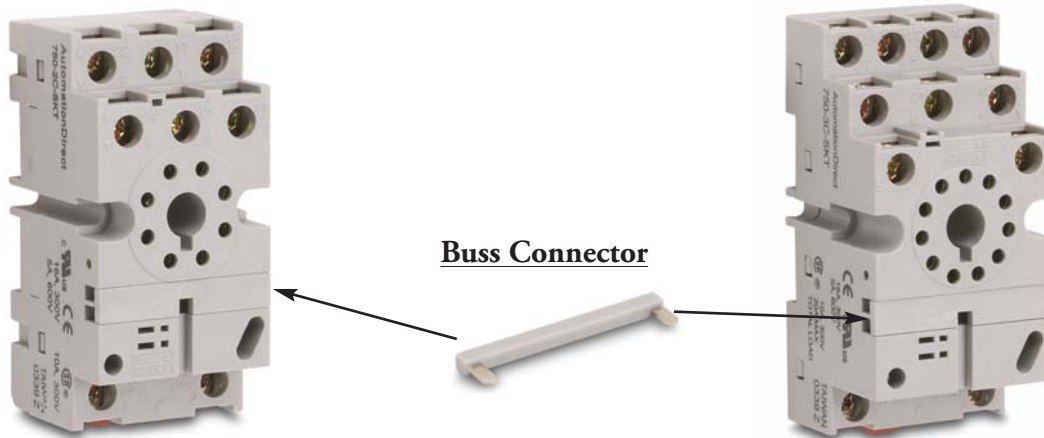
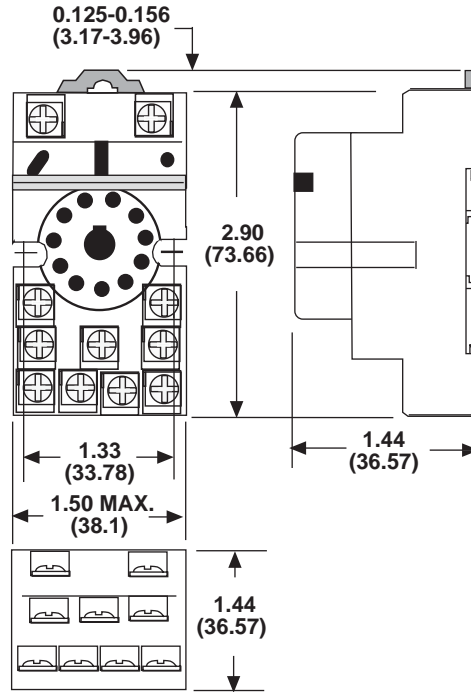
750-2C-SKT Dimensions

(in./mm)



750-3C-SKT Dimensions

(in./mm)



| Accessory | | |
|-------------|---|-------|
| Part Number | Description | Price |
| 33-796-1 | Coil buss connector used to connect multiple relays in parallel. Package includes 5 pair of buss bars to connect up to 5 relays together. | check |

PACKAGED M.O.V.s AND DIODES



Overview

Metal Oxide Varistors (MOV) and Diode circuits are offered as convenient plug in modules.

Plugging a module into the relay socket connects the circuit in parallel with the relay coil. No additional wiring required.

Modules fit within the maximum dimensions of the relay and socket.

Features

- MOVs protect by shunting potentially damaging electrical spikes away from the relay coil. Ideal for AC and DC applications.
- Diodes protect external drive circuitry from inductive voltages generated when removing coil voltage. Ideal for DC applications. Polarity sensitive.

Application

Many PLC systems control one or more inductive load devices. These inductive loads (devices with a coil) generate transient voltages when they are de-energized with a relay contact. When a relay contact is closed it “bounces”, which causes the coil to energize and de-energize until the “bouncing” stops. The transient voltage which is generated is much larger in amplitude than the supply voltage, especially with a DC supply voltage.

When switching a DC-supplied inductive load the full supply voltage is always present when the relay contact opens (or

“bounces”). When switching an AC-supplied inductive load, if the voltage is not zero when the relay contact opens, there is energy stored in the inductor that is released when the voltage to the inductor is suddenly removed. This release of energy is what produces transient voltages.

When inductive load devices (motors, motor starters, interposing relays, solenoids, valves, etc.) are controlled with relay contacts, it is recommended that a surge suppression device be connected directly across the coil of the field device. If the inductive device has plug-type connectors, the suppression device can be installed on the terminal block of the relay output.

Metal oxide varistors (MOV) and diodes are devices which provide good surge and transient suppression of AC and DC powered coils.



| Protection Device Selection Guide | | | | | |
|-----------------------------------|-------|--|-----------------------|----------------------|--|
| Part Number | Price | Description | Nominal Input Voltage | Dimensions & Package | Mating Socket |
| AD-ASMD-250 | check | Protection diode module for 784 and 75 series relays. Plug-in modules come in package of 5. | 6-250VDC | Figure 1 | 784-4C-SKT 750-2C-SKT 750-3C-SKT |
| AD-ASMM-24 | | MOV module for 784 and 75 series relays that operate at 24VAC coil voltage. Package includes 5 modules. | 24VAC/VDC | | |
| AD-ASMM-120 | | MOV module for 784 and 75 series relays that operate at 120VAC coil voltage. Package includes 5 modules. | 120VAC/VDC | | |
| AD-ASMM-240 | | MOV module for 784 and 75 series relays that operate at 240VAC coil voltage. Package includes 5 modules. | 240VAC/VDC | | |
| AD-BSMD-250 | check | Protection diode module for 782 series relays. Plug-in modules come in package of 5. | 6-250VDC | Figure 2 | 782-2C-SKT |
| AD-BSMM-24 | | MOV module for 782 series relays that operate at 24VAC coil voltage. Package includes 5 modules. | 24VAC/VDC | | |
| AD-BSMM-120 | | MOV module for 782 series relays that operate at 120VAC coil voltage. Package includes 5 modules. | 120VAC/VDC | | |
| AD-BSMM-240 | | MOV module for 782 series relays that operate at 240VAC coil voltage. Package includes 5 modules. | 240VAC/VDC | | |

Accessory dimensions

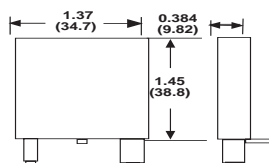


Figure 1

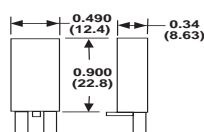
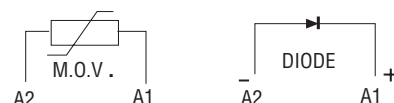


Figure 2

Wiring diagram



SOLID STATE RELAY SELECTION GUIDE



AD-SSRxxx-xx

A solid state relay is a relay with isolated input and output, whose functions are achieved by means of electronic components without the use of moving parts as found in electromechanical relays.

Operation:

Solid state relays are similar to electro-mechanical relays, in that both use a control circuit and a separate circuit for switching the load. When voltage is applied to the input of the SSR, the relay is energized by a light emitting diode. The light from the diode is beamed into a light sensitive semiconductor which, in



AD-70S2-xxx

the case of zero voltage crossover relays, conditions the control circuit to turn on the output of the solid state switch at the next zero voltage crossover. In the case of nonzero voltage crossover relays, the output of the solid state switch is turned on at the precise voltage occurring at the time. Removal of the input power disables the control circuit and the solid state switch is turned off when the load current passes through the zero point of its cycle.

Features:

Solid state relays have features which electromechanical relays do not, such as:

- Long life
- Shock and vibration resistant
- No generation of RFI, EMI
- No contact bounce
- Arcless switching
- No acoustic noise
- Zero voltage switching
- IC compatibility
- Immunity to humidity, salt spray and dirt

AD-SSR Features:

- AC & DC input
- AC output
- 10 or 25 Amp loads
- Photo isolated zero voltage switching
- 4000V rms isolation input to output
- Internal RC (snubber) network
- RFI suppression
- Integral safety cover and heatsink
- DIN-rail mounting or panel-mount

AD-70S2 Features:

- DC input
- AC output
- Up to 4 Amp loads
- Optically isolated
- Quick connect terminal, or panel mount when inserted into DIN-rail mountable socket

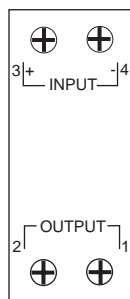
| Solid State Relay Selection Guide | | | | | | |
|-----------------------------------|-------|--|------------------------------|--|-------|------------|
| Part Number | Price | Description | Dimensions & Derating Charts | Relay Socket Part Number | Price | Dimensions |
| AD-SSR210-AC | check | Solid state DIN-rail mount relay with 10A contact rating. Coil voltage 90-280VAC. Load voltage is 24-280VAC. Finger-safe design and LED status lamp. | Figure 7 | N/A | N/A | N/A |
| AD-SSR225-AC | check | Solid state DIN-rail mount relay with 25A contact rating. Coil voltage 90-280VAC. Load voltage is 24-280VAC. Finger-safe design and LED status lamp. | | | | |
| AD-SSR210-DC | check | Solid state DIN-rail mount relay with 10A contact rating. Coil voltage 3-32VDC. Load voltage is 24-280VAC. Finger-safe design and LED status lamp. | | | | |
| AD-SSR225-DC | check | Solid state DIN-rail mount relay with 25A contact rating. Coil voltage 3-32VDC. Load voltage is 24-280VAC. Finger-safe design and LED status lamp. | | | | |
| AD-70S2-04B | check | Solid state plug-in relay with 4A contact rating. Coil voltage is 3-30VDC. Load voltage is 24-140VAC. | Figure 8 | 782-2C-SKT (see wiring diagram on next page) | check | Figure 5 * |
| AD-70S2-04C | check | Solid state plug-in relay with 4A contact rating. Coil voltage is 3-30VDC. Load voltage is 24-280VAC. | | | | |
| AD-70S2-04D | check | Solid state plug-in relay with 4A contact rating. Coil voltage is 3-30VDC. Load voltage is 8-50VAC. | | | | |

*NOTE: See page 22-23

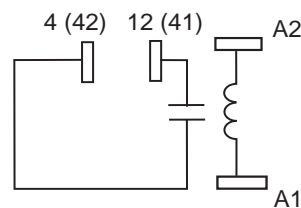
SOLID STATE RELAY SPECIFICATIONS

| General Specifications | | | | | | | |
|--|--------------------------------|--------------|--------------|--------------|--------------------------|-------------|-------------|
| Part Number | AD-SSR210-DC | AD-SSR210-AC | AD-SSR225-DC | AD-SSR225-AC | AD-70S2-04B | AD-70S2-04C | AD-70S2-04D |
| Input Characteristics | | | | | | | |
| Control Voltage Range | 3-32 VDC | 90-280 VAC | 3-32 VDC | 90-280 VAC | 3-30 VDC | | |
| Typical Input Current | 16 mA | 12 mA | 16 mA | 12 mA | 1-17 mA | | |
| Must Release Voltage | 1 VDC | 10 VAC | 1 VDC | 10 VAC | 1.0 VDC | | |
| Reverse Polarity Protection | Yes | N/A | Yes | N/A | No | | |
| Maximum Reverse Control Voltage | N/A | | | | 5 VDC | | |
| Power Indicator | Red LED Status Lamp | | | | N/A | | |
| Output Characteristics | | | | | | | |
| Load Voltage Range | 24-280VAC | | | 24-140 VAC | 24-280 VAC | 8-50 VAC | |
| Rated Load Current | 10 A | | 25 A | | 4 A | 4 A | 4 A |
| Maximum Off-State Voltage dv/dt | 200 μ S | | 500 μ S | | 3000 V / μ S Typical | | |
| Minimum Load Current | 50 mA | | 120 mA | | 75 mA | | |
| Non-Repetitive Surge Current (1 Cycle) | 83 A | | 800 A | | 60 A Peak Max. @ 25°C | | |
| Maximum Off State Leakage current (RMS) | 10 mA | | | | 6 mA | | 3 mA |
| Typical On-State Voltage Drop (RMS) | 1.25 VAC | | 1.35 VAC | | 1.6 VAC | | |
| Maximum FT for Fusing (A²Sec) | 83 | | 3700 | | N/A | | |
| Maximum Peak Blocking Voltage | N/A | | | | 400 V | 600 V | 200 V |
| Operating Frequency Range | 25 Hz to 70 Hz | | | | | | |
| Maximum Turn-On Time | 10mS | 40mS | 10mS | 40mS | 8.3 mS | | |
| Maximum Turn-Off Time | 10mS | 80mS | 10mS | 80mS | 8.3 mS | | |
| Miscellaneous Characteristics | | | | | | | |
| Dielectric Strength (Input-to)Output Isolation | 4000 V rms | | | | 3000 V rms | | |
| Insulation Resistance | 10 ¹⁰ Ω Min. | | | | | | |
| Operating Temperature Range | -30°C to +80°C | | | | -40°C to +100°C | | |
| Storage Temperature Range | -40°C to +100°C | | | | -40°C to +125°C | | |
| Weight | 12.35 oz. (350 g) approx. | | | | 1.4 oz. (40 g) Approx. | | |

AD-SSRxxx-xx wiring diagram



AD-70S2-xx wiring diagram



SSR SERIES DIMENSIONS & DERATING CHARTS

AD-SSR Series Dimensions

(in./mm)

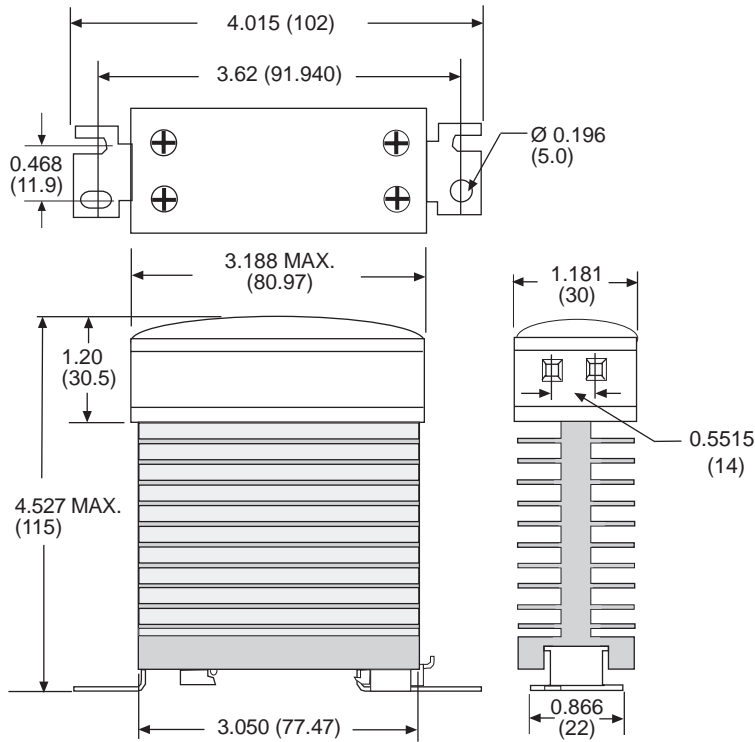
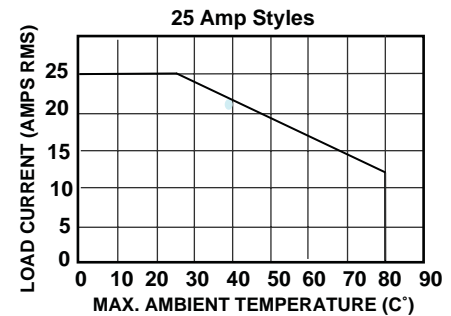
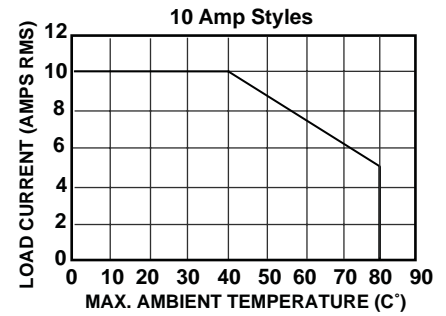


Figure 7

AD-SSR Series derating charts



Note: Recommended spacing between multiple SSRs is 0.75 inch.

AD-70S2 Series Dimensions

(in./mm)

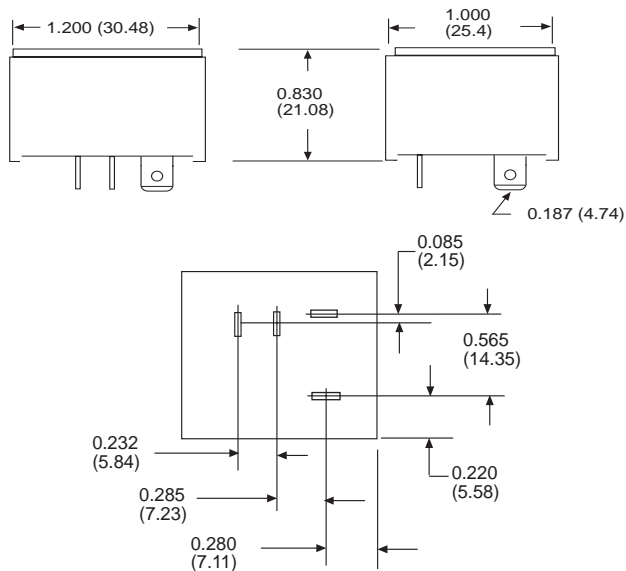
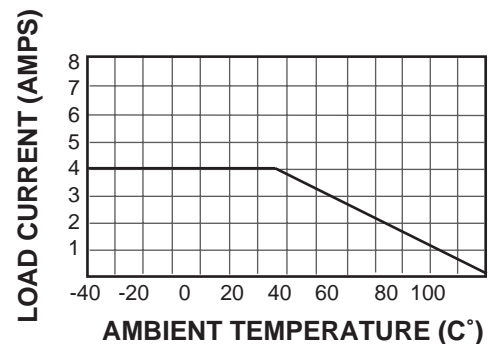


Figure 8

AD-70S2 Series derating charts



TIMERS FOR ALL APPLICATIONS



AUTOMATIONDIRECT now offers solid-state timers brought to you by two leaders in the industry, FUJI and Koyo.

FUJI Electric has been in business since 1923 and has been selling timers in the U.S. since 1970. All FUJI products are produced under ISO9001 and ISO14000 criteria. Koyo has been selling timers for over 30 years. All timers meet UL and CE conformity. Whether you need a miniature DIN timer, a 1/16 DIN timer, or a full-blown 1/16

DIN digital timer, and need to time in seconds or hours, AUTOMATIONDIRECT can supply a timer that fits your needs.

FUJI multi-mode timers feature:

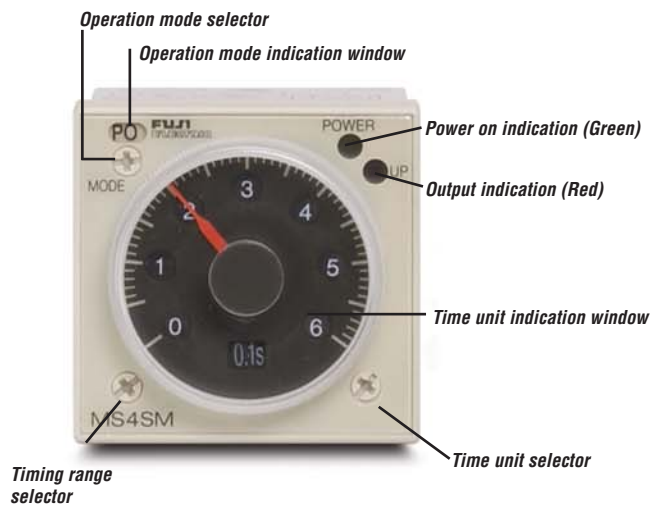
Ease of use: How many times have you had to perform a math test just to determine your time range? In our unit, as the time range is adjusted, the corresponding display changes. This feature makes it very easy for the operator to set and read.

Full functionality: Up to four output modes can be selected simply with the turn of a screw. All outputs contain 5A, DPDT relays. This power allows you to minimize your inventory and maximize your flexibility.

LED indicators: Simply by looking at the face panel, you can tell if the timer is working properly.

Startup ease: When the dial is set to zero, the output turns on automatically. This feature allows for quick troubleshooting.

FUJI multi-mode timers with full features



Miniature DIN timers are small and accurate

Small size: Measuring under one inch wide, these timers will save you much needed room in your enclosure. DIN rail mounting makes for easy installation.

Easy operation: A simple dial allows easy setup for the operator. With the indicating LEDs, an operator can easily check for proper operation.

Accuracy: The timer will perform its timing function, over and over again, with repeatable accuracy of +/- 1% of the setting.



Koyo digital timers: powerful but easy to use

This full-function timer has all the bells and whistles, including full programmability:

Timing ranges and modes: Seconds to hours time ranges with decimal selection meet the widest range of timing requirements. Up and down timing modes accommodate the user's operation preference.

Output modes: Five output modes, from on-delay to one-shot, use a reliable 2A relay to operate the controlled device.

Tamper-proof: Key protection can be set for individual keys to prevent unintentional changes by the operator.



Applications

Timers are used to perform a repeatable and predictable sequence of events. They can stand alone and control devices based on the timer setting and other operator selections, or they can receive commands remotely from other devices such as PLCs. Examples of time-based applications include an automated car wash sequence, a batch operation that adds and mixes ingredients based on time periods, or a paint process that uses the position of an object for a start signal, then operates a paint sprayer for a set time length.

| ST7P Series | MS4S Series | KT-V4S Series |
|-------------|-------------|---------------|
|-------------|-------------|---------------|



| Display | Manual dial Time setting Output LED indicator | Manual dial Time setting Power LED indicator Output LED indicator Output mode setting | 4-digit green LED display for time setting 4-Digit red LED display for current time Output LED indicator Programming indicators |
|-------------------------|---|---|--|
| Input Power | 100-120 VAC or 24 VDC | 100-240 VAC or 24 VDC/AC | 85-260 VAC or 10-26 VDC |
| Inputs | Timed signal | Reset signal Start signal Gate signal Timed signal | Start signal Reset signal Timed signal |
| Outputs | Normally-open DPDT Normally-closed DPDT | Normally-open DPDT Normally-closed DPDT | 1 SPDT DC NPN transistor |
| Contact Rating | 3 A @ 240 VAC (resistive load) | 5 A @ 250 VAC (resistive load) | Mechanical: 2 A @ 220 VAC Transistor: 100 mA @ 24 VDC |
| Output Modes | On-delay | On-delay Flicker One shot Off-delay | On-delay Flicker One shot Off-delay Accumulation |
| Time Ranges | 0.4 seconds to 60 minutes | 0.05 seconds to 60 hours | 0.001 seconds to 999.9 hours |
| Enclosure Rating | NEMA 1 | NEMA 1 | IP65 - faceplate |
| Agency Approvals | UL/CSA/CE/TUV | UL/CSA/CE/TUV | UL/CSA/CE |
| Price | check | check | check |

FUJI 1/16 DIN SUPER TIMERS

Overview

The MS4S series super timers are 1/16 DIN style timing relays designed for process control, machine tool control, safety control and many other types of applications. The timers are plug-in 8-pin or 11-pin surface/DIN rail mountable with up to four selectable modes of operation and four selectable timing ranges.

Features

MS4SM

- Multi-mode timer with mode indication. On-delay (PO), flicker (FL), one-shot (OS), or signal off-delay (SF)
- 11-pin plug-in with start, reset and gate (interrupt) input signals and a DPDT contact output
- Timing range from 0.05 seconds to 60 hours

- Timer scale with selectable ranges of 0-6, 0-12, 0-30 and 0-60
- Timing units in selectable ranges of 0.1s, sec, min and hrs
- Power on LED indicator (green) flickers during timing operation, UP (red) LED is on when normally open contact is closed

MS4SA

- On-delay timer
- 8-pin plug-in with a DPDT contact output
- Timing range from 0.05 seconds to 60 hours
- Timer scale with selectable ranges of 0-6, 0-12, 0-30 and 0-60
- Timing units in selectable ranges of 0.1s, sec, min and hrs

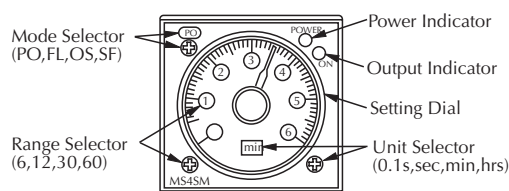
- Power on LED indicator (green) flickers during timing operation, UP (red) LED is on when normally open contact is closed.

MS4SC

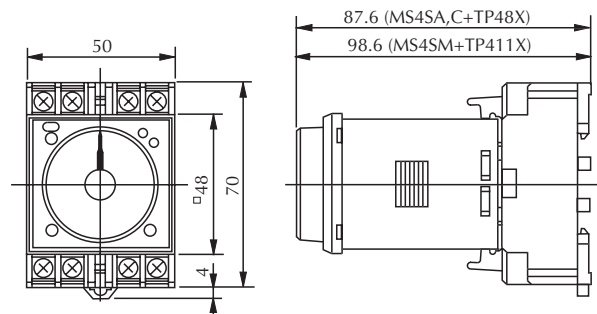
- On-delay timer
- 8-pin plug-in with a SPDT timed contact output and a SPDT instantaneous contact output
- Timing range from 0.05 seconds to 60 hours
- Timer scale with selectable ranges of 0-6, 0-12, 0-30 and 0-60
- Timing units in selectable ranges of 0.1s, sec, min and hrs
- Power on LED indicator (green) flickers during timing operation, UP (red) LED is on when normally open contact is closed

| Product Selection Guide | | | | |
|-------------------------|--|-------------|--------------------------|-------|
| Part Number | Description | Voltage | Time Range | Price |
| MS4SM-AP-ADC | Multi-mode timer with selectable timing range from 0.05s to 60 hours. Input power is 100 - 240 VAC. DPDT relay output. 11-pin connection. UL, CSA, TÜV approved | 100-240 VAC | 0.05 seconds to 60 hours | check |
| MS4SA-AP-ADC | On-delay timer with selectable timing range from 0.05s to 60 hours. Input power is 100 - 240 VAC. DPDT relay output. 8-pin connection. UL, CSA, TÜV approved | | 0.05 seconds to 60 hours | check |
| MS4SC-AP-ADC | On-delay timer with selectable timing range from 0.05s to 60 hours. Input power is 100 - 240 VAC. SPDT timed relay output and SPDT instantaneous relay output. 8-pin connection. UL, CSA, TÜV approved | | 0.05 seconds to 60 hours | check |
| MS4SM-CE-ADC | Multi-mode timer with selectable timing range from 0.05s to 60 hours. Input power is 24 VDC/AC DPDT relay output. 11-pin connection. UL, CSA, TÜV approved | 24 VDC/AC | 0.05 seconds to 60 hours | check |
| MS4SA-CE-ADC | On-delay timer with selectable timing range from 0.05s to 60 hours. Input power is 24 VDC/AC. DPDT relay output. 8-pin connection. UL, CSA, TÜV approved | | 0.05 seconds to 60 hours | check |
| MS4SC-CE-ADC | On-delay timer with selectable timing range from 0.05s to 60 hours. Input power is 24 VDC/AC. SPDT timed relay output and SPDT instantaneous relay output. 8-pin connection. UL, CSA, TÜV approved | | 0.05 seconds to 60 hours | check |
| TP411X | Surface mount socket for MS4SM series timers. UL, CSA, TÜV approved | N/A | N/A | check |
| TP411SBA | Flush mount socket for MS4SM series timers. UL, CSA, TÜV approved | | | check |
| TP48X | Surface mount socket for MS4SA and MS4SC series timers. UL, CSA, TÜV approved | | | check |
| TP48SB | Flush mount socket for MS4SA and MS4SC series timers. UL, CSA, TÜV approved | | | check |

Control



Dimensions (Timer and Socket Shown Attached)



FUJI 1/16 DIN SUPER TIMERS



MS4SM-AP-ADC
MS4SM-CE-ADC



MS4SA-AP-ADC
MS4SA-CE-ADC



MS4SC-AP-ADC
MS4SC-CE-ADC



TP411X



TP411SBA



TP48X



TP48SB

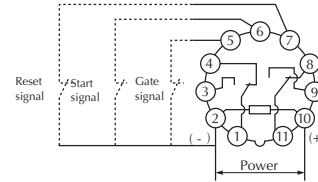
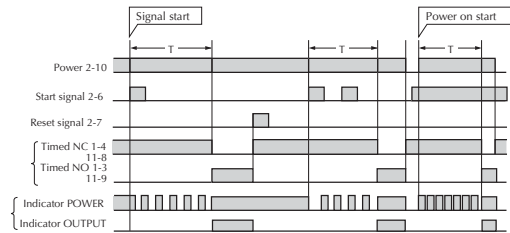
Specifications

| | | |
|------------------------------------|--|--|
| Approvals | UL file no.: E44592, CSA file no.: LR20479, TÜV license no.: R9551800 | |
| Repeat Accuracy | ±0.3% at maximum setting time | |
| Reset Time | 0.1 second or less | |
| Operating Voltage Range | 85-264 VAC MS4SM-AP-ADC MS4SA-AP-ADC MS4SC-AP-ADC | 20.4-26.4 VDC/AC MS4SM-CE-ADC MS4SA-CE-ADC MS4SC-CE-ADC |
| Operating Temperature Range | -10 to +55°C (14 to 131°F) (no icing) | |
| Humidity | 35 to 85% (no condensation) | |
| Contact Ratings | 5 A @ 30 VDC resistive load, 1 A @ 30 VDC inductive load, 5 A @ 250 VAC resistive load, 2.5 A @ 120 VAC inductive load | |
| Power Consumption | Approx. 10 VA at 120/240 VAC; 1 W at 24 VDC | |
| Insulation Resistance | 100MΩ at 500 VDC insulation tested | |
| Dielectric Strength | 2000 VAC 1 min. between current carrying part and non-current carrying part 2000 VAC 1 min. between output contact and control circuit 1000 VAC 1 min. between open contacts | |
| Vibration | Malfunction durability: 10 to 55Hz, 0.5mm double amplitude Mechanical durability: 10 to 55Hz, 0.75mm double amplitude | |
| Shock | Malfunction durability: 100m/s ² Mechanical durability: 500m/s ² | |
| Life Expectancy | Mechanical: 20 million operations (No load operation cycle: 1800/hr.) Electrical: 100,000 operations at 250 VAC 5 A resistive load (operation cycle: 1800/hr.) | |
| Weight | Approx. 100g (3.527 oz.) | |

FUJI 1/16 DIN TIMERS TIMING AND WIRING DIAGRAMS

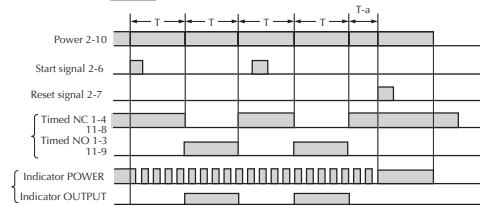
MS4SM

1. On-delay PO



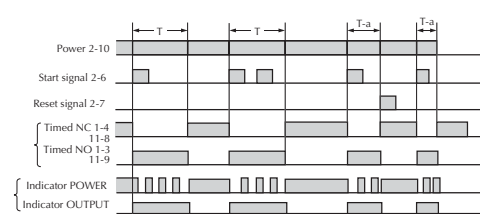
- With power off turn the mode selector until **PO** is displayed.
- When power is on, applying the start signal turns the timed N.O. (normally open) contact on after the set time has elapsed.
- When using a power-on start, pins 2 and 6 (start signal) must be jumpered together

2. Flicker FL



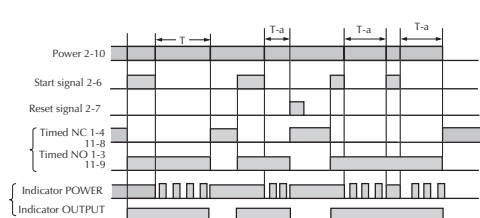
- With power off, turn the mode selector until **FL** is displayed.
- When power is on, applying the start signal turns the timed contact on and off repeatedly at the set time intervals.

3. One-shot OS



- With power off, turn the mode selector until **OS** is displayed
- When power is on, applying the start signal instantly turns the timed N.O. contact on and turns it off after the set time has elapsed.

4. Signal off-delay SF



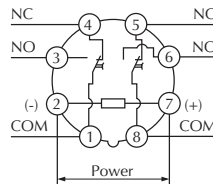
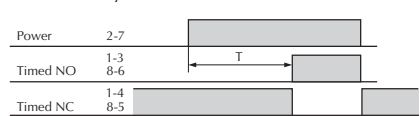
- With power off, turn the mode selector until **SF** is displayed.
- When power is on, applying the start signal instantly turns the timed N.O. contact on. Removing the start signal turns the contact off after the set time has elapsed.

Notes:

1. T = set time. t = time period within set time.
2. The gate signal is used to interrupt the timing operation.

MS4SA

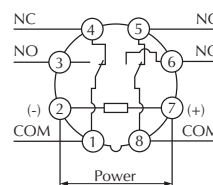
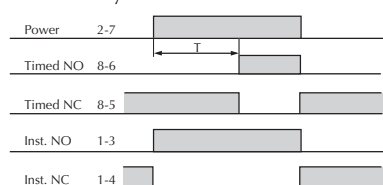
On-delay



- When power is applied, the timed N.O. contacts make after the set time has elapsed.
- When power is removed, the contacts reset.

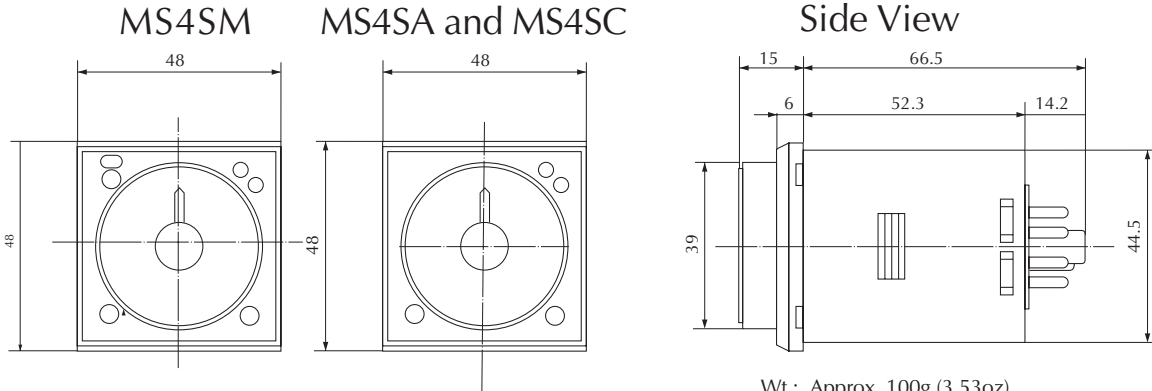
MS4SC

On-delay



- Timed contact
When power is applied, the N.O. contact makes after the set time has elapsed. When power is removed, the contacts reset.
- Instantaneous contact
When power is applied, the N.O. contact makes instantly. When power is removed, the contacts reset.

FUJI 1/16 DIN SUPER TIMERS DIMENSIONS

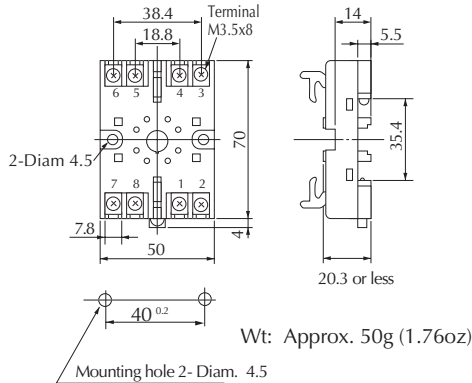


All dimensions in mm

Wt : Approx. 100g (3.53oz)

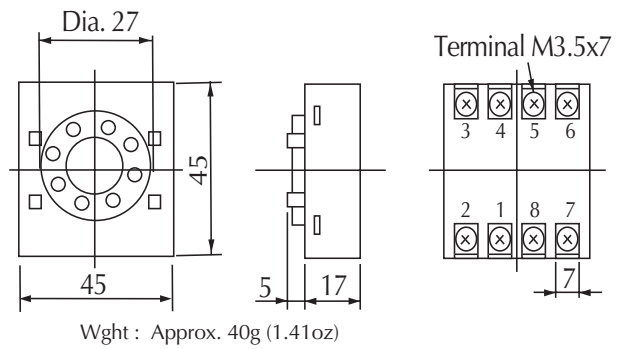


Socket for MS4SA, MS4SC (8-pin)
TP48X



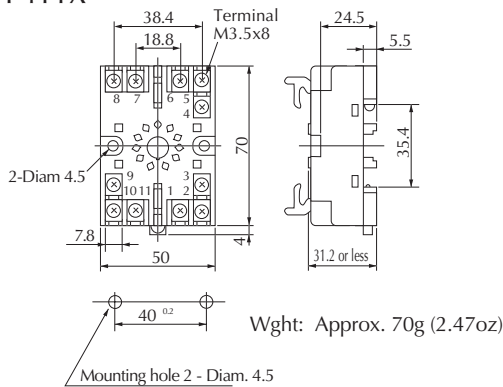
Wt: Approx. 50g (1.76oz)

Sockets for MS4SA, MS4SC (8-pin)
TP48SBA



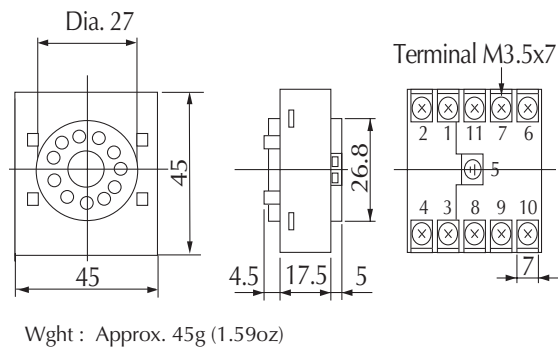
Wght : Approx. 40g (1.41oz)

Socket for MS4SM (11-pin)
TP411X



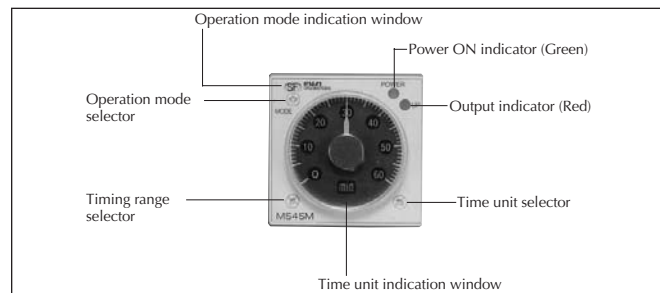
Wght: Approx. 70g (2.47oz)

Sockets for MS4SM (11-pin)
TP411SBA



Wght : Approx. 45g (1.59oz)

Using the super timer



FUJI MINIATURE DIN SUPER TIMERS

Overview

The ST7P is a compact and highly accurate timer. It is an on-delay operation type with a single timing range. These timers are designed to optimize mounting space in small areas. Mounting is by DIN rail or by securing directly to a panel with a fastener.

Features

- Highly accurate, with a repeat accuracy within $\pm 1\%$ at maximum setting time
- ST7P models offer a number of timing ranges. Please see Selection Guide below.
- Large dial makes time setting easy
- LED indicators make it easy to monitor timer operation
- ST7P series meets UL and CSA standards



ST7P Miniature Super Timer with TP88X2 Socket

| Product Selection Guide | | | | |
|-------------------------|---|------------|--------------------------|-------|
| Part Number | Description | Voltage | Time Range | Price |
| ST7P-2A15S-ADC | Mini-DIN on-delay timer with timing range of 0.4s to 5s. Input power is 100-120 VAC. DPDT relay output. UL, CSA, TÜV approved | 100-120VAC | 0.4 seconds to 5 seconds | check |
| ST7P-2A13T-ADC | Mini-DIN on-delay timer with timing range of 2s to 30s. Input power is 100-120 VAC. DPDT relay output. UL, CSA, TÜV approved | | 2 seconds to 30 seconds | check |
| ST7P-2A16T-ADC | Mini-DIN on-delay timer with timing range of 4s to 60s. Input power is 100-120 VAC. DPDT relay output. UL, CSA, TÜV approved | | 4 seconds to 60 seconds | check |
| ST7P-2A11N-ADC | Mini-DIN on-delay timer with timing range of 1 min. to 10 min. Input power is 100-120 VAC. DPDT relay output. UL, CSA, TÜV approved | | 1 minute to 10 minutes | check |
| ST7P-2A16N-ADC | Mini-DIN on-delay timer with timing range of 4 min. to 60 min. Input power is 100-120 VAC. DPDT relay output. UL, CSA, TÜV approved | | 4 minutes to 60 minutes | check |
| ST7P-2DE5S-ADC | Mini-DIN on-delay timer with timing range of 0.4s to 5s. Input power is 24 VDC. DPDT relay output. UL, CSA, TÜV approved | 24VDC | 0.4 seconds to 5 seconds | check |
| ST7P-2DE3T-ADC | Mini-DIN on-delay timer with timing range of 2s to 30s. Input power is 24 VDC. DPDT relay output. UL, CSA, TÜV approved | | 2 seconds to 30 seconds | check |
| ST7P-2DE6T-ADC | Mini-DIN on-delay timer with timing range of 4s to 60s. Input power is 24 VDC. DPDT relay output. UL, CSA, TÜV approved | | 4 seconds to 60 seconds | check |
| ST7P-2DE1N-ADC | Mini-DIN on-delay timer with timing range of 1 min. to 10 min. Input power is 24 VDC. DPDT relay output. UL, CSA, TÜV approved | | 1 minute to 10 minutes | check |
| ST7P-2DE6N-ADC | Mini-DIN on-delay timer with timing range of 4 min. to 60 min. Input power is 24 VDC. DPDT relay output. UL, CSA, TÜV approved | | 4 minutes to 60 minutes | check |
| TP88X2 | Socket for ST7P series timers. UL, CSA, TÜV approved | N/A | N/A | check |

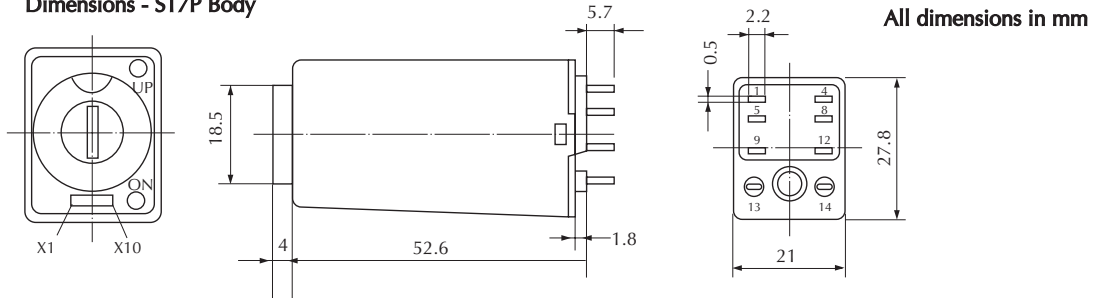
FUJI MINIATURE DIN SUPER TIMER SPECIFICATIONS

| Specifications | | | | | | | | | | | | | |
|------------------------------------|--|------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Approvals | UL file no.: Body - E44592, Socket - E90265; CSA file no.: LR20479; TÜV license no: R9551799 | | | | | | | | | | | | |
| Repeat Accuracy | ±01% at maximum setting time | | | | | | | | | | | | |
| Reset Time | 0.1 second or less | | | | | | | | | | | | |
| Maximum Operating Cycle | 1800 cycles/hour | | | | | | | | | | | | |
| Operating Voltage Range | <table border="0"> <tr> <td>85-132 VAC</td> <td>20.4-26.4 VDC</td> </tr> <tr> <td>ST7P-2A15S-ADC</td> <td>ST7P-2DE5S-ADC</td> </tr> <tr> <td>ST7P-2A13T-ADC</td> <td>ST7P-2DE3T-ADC</td> </tr> <tr> <td>ST7P-2A16T-ADC</td> <td>ST7P-2DE6T-ADC</td> </tr> <tr> <td>ST7P-2A11N-ADC</td> <td>ST7P-2DE1N-ADC</td> </tr> <tr> <td>ST7P-2A16N-ADC</td> <td>ST7P-2DE6N-ADC</td> </tr> </table> | 85-132 VAC | 20.4-26.4 VDC | ST7P-2A15S-ADC | ST7P-2DE5S-ADC | ST7P-2A13T-ADC | ST7P-2DE3T-ADC | ST7P-2A16T-ADC | ST7P-2DE6T-ADC | ST7P-2A11N-ADC | ST7P-2DE1N-ADC | ST7P-2A16N-ADC | ST7P-2DE6N-ADC |
| 85-132 VAC | 20.4-26.4 VDC | | | | | | | | | | | | |
| ST7P-2A15S-ADC | ST7P-2DE5S-ADC | | | | | | | | | | | | |
| ST7P-2A13T-ADC | ST7P-2DE3T-ADC | | | | | | | | | | | | |
| ST7P-2A16T-ADC | ST7P-2DE6T-ADC | | | | | | | | | | | | |
| ST7P-2A11N-ADC | ST7P-2DE1N-ADC | | | | | | | | | | | | |
| ST7P-2A16N-ADC | ST7P-2DE6N-ADC | | | | | | | | | | | | |
| Operating Temperature Range | -10 to +50°C (14 to 122°F) | | | | | | | | | | | | |
| Humidity | 35 to 85% (no condensation) | | | | | | | | | | | | |
| Contact Ratings | 3 A @ 240 VAC resistive load, 1 A @120 VAC inductive load; 3 A @ 30 VDC resistive load, 0.5 A @ 30 VDC inductive load | | | | | | | | | | | | |
| Power Consumption | Approx. 1.2 VA at 100 VAC, approx. 1.5 VA at 200 VAC, 1.1 W at 24 VDC. | | | | | | | | | | | | |
| Insulation Resistance | 100MΩ at 500 VDC insulation tested | | | | | | | | | | | | |
| Surge Voltage* | 3000 Volts | | | | | | | | | | | | |
| Dielectric Strength | 2000 VAC 1 min. between current carrying part and non-current carrying part 2000 VAC 1 min. between output contact and control circuit 1000 VAC 1 min. between open contacts | | | | | | | | | | | | |
| Vibration | Malfunction durability: 10 to 55Hz, 0.5mm double amplitude Mechanical durability: 10 to 55Hz, 0.7mm double amplitude | | | | | | | | | | | | |
| Shock | Malfunction durability: 50m/s ² Mechanical durability: 1000m/s ² | | | | | | | | | | | | |
| Life Expectancy | Mechanical: 50 million operations (No load; operation cycle 1800/hr.) Electrical: 500,000 operations (3 A @ 220 VAC, resistive load; operation cycle 1800/hr.) | | | | | | | | | | | | |
| Weight | 36.288g (1.28 oz.) | | | | | | | | | | | | |

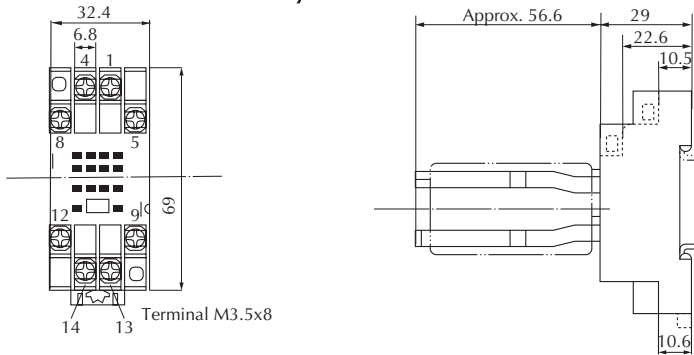
* Note: If surge voltage exceeds 3000V, use surge suppressors.

FUJI MINIATURE DIN TIMERS TIMING AND WIRING

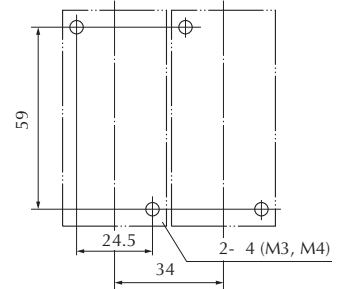
Dimensions - ST7P Body



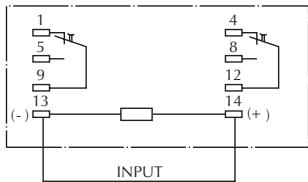
Dimensions - TP88X2 Body



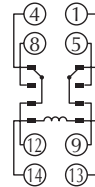
Panel Drilling



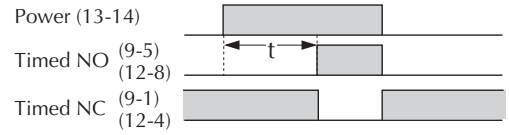
Wiring Diagram



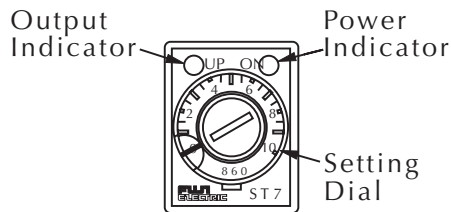
Sockets/Screw Terminal and Rail Mounting



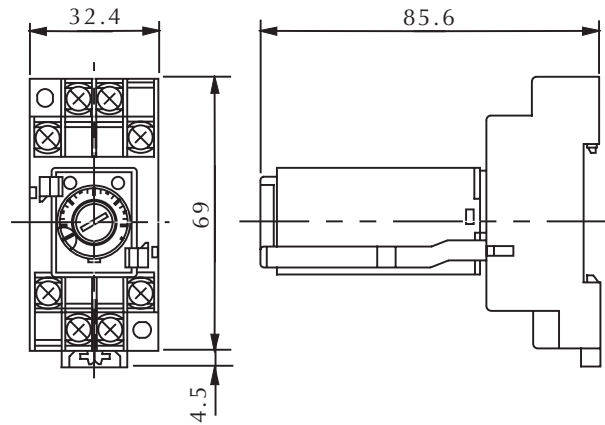
Timing Diagram



Control



Dimensions (Timer and Socket Attached)



Koyo Digital Timers

Overview

Koyo digital timers offer flexible features at a great price. A large, easy to read display is offered in a small 1/16 DIN size. The large, bright red LED display has a 12mm character display height which allows it to be seen easily from a distance and at an angle. In addition, set values use a green LED display to differentiate from timing values. Basic function settings are made with digital switches. Detailed settings are selected with digital keys, so operation is easy.

Features

- Tamper-proof: key protection can be set for individual keys to prevent a malfunction or tampering
- Battery-less memory retention: EEPROM is used to retain values in memory, so there is no need for battery maintenance
- Maintenance has been reduced via removable terminals. After wiring, the terminal cover provides a safe barrier for worry-free use
- Power source for a DC sensor: you can source the power for the sensor from the built-in power source which supplies 60 mA at 24 VDC
- Wide operating AC voltage range of 85-264 VAC
- Various types of time ranges: covers ten types of time ranges with times of 0.001 second to 9999 hours
- Five types of operating modes: settings of on-delay, off-delay, one-shot, accumulation and flicker
- Display of elapsed time/remaining time
- IP65 protective structure: front cover panel is made of a clear membrane, so operation with wet or dirty hands can be worry-free
- Fully CE and UL compliant



KT-V4S-D



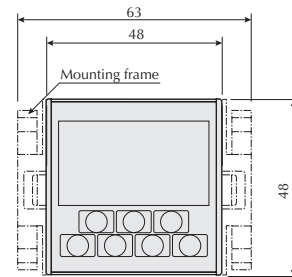
KT-V4S-C-D

| Product Selection Guide | | | | | |
|-------------------------|---|------------------|----------------|----------------------------|-------|
| Part Number | Description | Number of Digits | Source Voltage | Time Range | Price |
| KT-V4S-D | Digital timer with 10 types of time ranges (see specifications). Input power is 100-240 VAC. UL and CSA approved. | 4 | 100-240 VAC | 0.001 second to 9999 hours | check |
| KT-V4S-C-D | Digital timer with 10 types of time ranges (see specifications). Input power is 12-24 VDC. UL and CSA approved | | 12-24 VDC | | check |
| Accessories | | | | | |
| Part Number | Description | | | | Price |
| PANEL-16 | Mounting clip for 1/16th DIN timers and temperature/process controllers. 5 clips per package | | | | check |

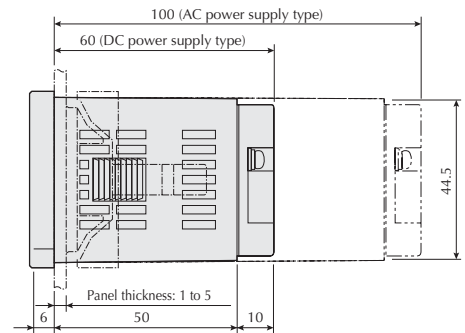
KOYO DIGITAL TIMERS SPECIFICATIONS

| General Specifications | | |
|---|--|---|
| Power | AC Power | DC Power |
| Part Number | KT-V4S-D | KT-V4S-C-D |
| Approvals | UL listed, CSA listed | UL recognized only with Class II power supply; CSA: EN61010-1 and EMI: EN55-11, EMS: EN50082-2. If product has DC power supply, an EMI/EMC filter must be installed on the power supply. |
| Source Voltage | 100-240 VAC | 12-24 VDC |
| Permitted Power Fluctuation | 85-264 VAC | 10-26.4 VDC |
| Power Consumption | Approx. 11 VA | Approx. 4 W |
| Sensor Power | 24 VDC (20-28 V) 60 mA (less than 10%p-p ripple noise) | N/A |
| Memory Backup upon Power Failure | EEPROM writing up to 100,000 times; Memory duration: 10 years | |
| Ambient Temperature | -10-50°C (14 to 122°F) | |
| Storage Temperature | -20-70°C (-4 to 158°F) (with no icing) | |
| Ambient Humidity | 35-85% RH non-condensing | |
| Withstand Voltage | 2 kVAC for one minute | |
| Vibration Resistance | Durability: Displacement amplitude 0.5mm 10-55 Hz along three axes Operating vibration: Displacement amplitude 0.35mm 10-55 Hz along three axes | |
| Impact Resistance | Durability: 490 m/s ² along three axes Operating impact: 98 m/s ² along three axes | |
| Noise Resistance | AC power between terminals ±1.5 kV (pulse width 1µs and rise time 1ns) | DC power between terminals ± 1.0 kV (pulse width 1 µs and rise time 1 ns) |
| Protective Structure | IP65 (front panel only) | |
| Weight | Approx. 150 grams (5.291 oz.) | Approx. 110 grams (3.88 oz.) |
| Terminals | Conforming wiring | 0.25-1.65 mm ² 24 to 16 gauge |
| | Permitted Torque | 0.5 Nm (.369 ft./lbs.) |

Dimensions



Dimensions in mm



| | Depth dimension |
|----------------------|-----------------|
| DC power supply type | 66mm |
| AC power supply type | 106mm |

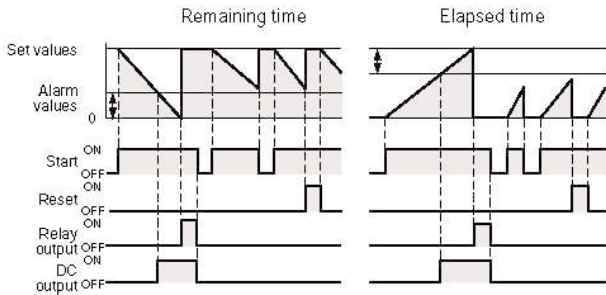
| Performance Specification | |
|----------------------------------|--|
| Category | Timer |
| Operational Format | On-delay, off-delay, one-shot, accumulator, and flicker (with alarm output) |
| Number of Digits | 4 digits |
| Display | Current values: red LED, character height 12 mm; Preset value: green LED, character height: 7mm |
| Time Range | 0.001s-9.999s/0.01s-99.99s/0.1s-999.9 s/1s-9999 s/1 s-99 min 59 s/1 min-9999 min/1 h-9999 h/1 min-99 h 59 min/0.1 min-999.9 min/0.1h-999.9 h |
| Display | Elapsed time/remaining time |
| Timer Precision | 0.013% or ±15 ms (using large values) |
| Input | Input logic: negative logic (no voltage input) positive logic (voltage input) |
| | Input resistance: positive logic 15 kΩ; negative logic 3.3 kΩ (AC power)/1.8 kΩ (DC power) |
| | Input voltage: "L" 0-3V "H" 7-30 V |
| Start Input Response | Less than 15 ms/5 ms/1 ms |
| External Reset | Min. signal amplitude 5 ms |
| Output | DC output: NPN open collector output/24 V 100 mA. Withstand voltage 35 V. Residual voltage less than 1.5 V |
| | Relay output: 1 SPDT 220 VAC 2 A (resistive load) |
| Output Duration (flicker) | 10-9990 ms variable every 10 ms |
| Installation | 1/16 DIN panel mount |

KOYO DIGITAL TIMERS TIMING AND WIRING DIAGRAMS



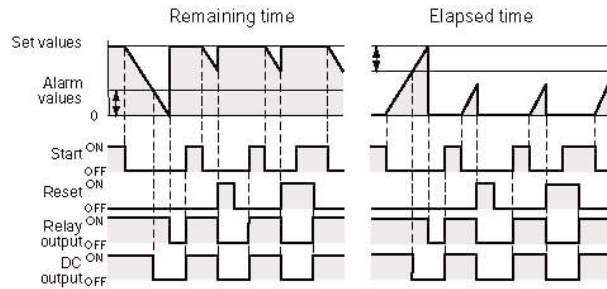
On-delay

↑ : Alarm setting
SW 1 2
OFF OFF



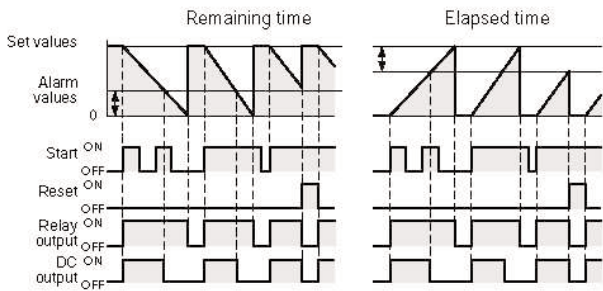
Off-delay

SW 1 2
OFF ON



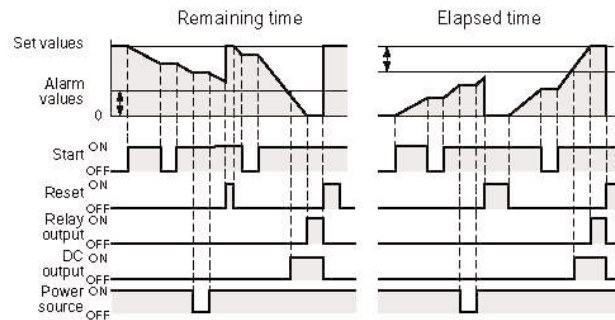
One-shot

SW 1 2
ON OFF



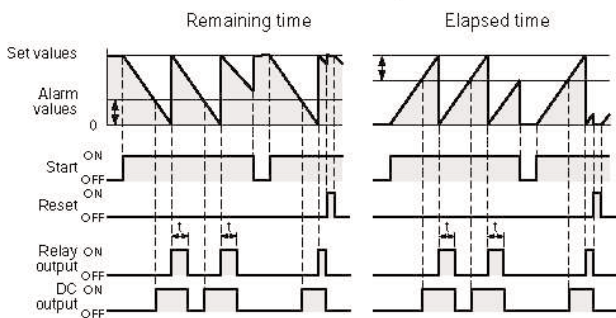
Accumulation

SW 1 2
ON ON



Flicker

(in Setup mode)



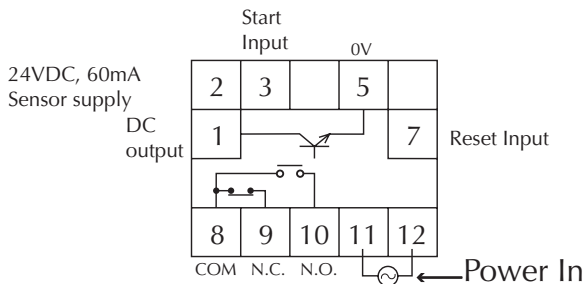
↑ : Alarm settings

When alarm settings are 0, the DC output is the same as the output operations for a relay output.

Note: Alarm settings should be less than preset values. Using alarm settings with values that exceed preset values will result in measurement values of 0 and the alarm output (DC output) will come ON.

Note: Output duration is variable from 0-9990 ms. (Default: 100 ms)

KT-V4S-D



KT-V4S-C-D

